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ORIGINAL ARTICLES.

THE TREATMENT OF ACUTE LOBAR PNEUMONIA.[1]

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IN opening the discussion of this topic this evening I would say by word of preface that I will restrict myself to the disease as it occurs in adults, and will confine myself to presenting some of the more important indications rather than a complete survey of the whole field.

We are indebted to Townsend and Coolidge[2] for bringing home a very valuable lesson in the treatment of acute lobar pneumonia. The records of 1000 patients who were consecutively treated for this disease at the Massachusetts General Hospital from 1822 to 1889 were carefully studied; they eliminated all cases which were doubtful, *i. e.*, "where death could be reasonably accounted for, that is to say, all who died who were over fifty years of age, were intemperate, delicate, or had complications." The mortality of the cases remaining after this exclusion was reckoned according to decades and presented in a graphic curve (Chart X., *loc. cit.*, p. 40). The result was almost a straight line, the rate varying between nine and fourteen per cent., showing that in spite of all the changes in treatment ranging from the bleeding, purging, salivation, and blistering of 1822 to the symptomatic treatment of our own time, the death-rate at this hospital was practically unchanged.[3] Surely these statistics ranging over a period of more than sixty years, in which the elements of season, sex, epidemics, etc., have been eliminated, must teach a lesson to the physicians who claim such wonderful results from the treatment of pneumonia on any fixed plan. Let them also consider the results obtained about 1850 by Skoda and Diettl with practically no treatment. There is no escape from the conclusion that at present we are utterly powerless to *directly* influence the course of this disease. Our only hope lies in the development of the antitoxin treatment to give us some specific means of combatting the pneumococcus toxemia, for our present knowledge of the life history of the pneumococcus shows that no drug or method of treatment thus far known can in any way surely influence its action.

Although we are justified in expecting the production of a curative pneumococcus antitoxin, the results thus far obtained by Klemperer, Lara, Bozzolo, De Renzi, Pane,[1] and Washburne, while encouraging, are by no means conclusive. The problem is a very difficult one, for all the experimenters have been very much hampered by the great variability in the virulence of the Fraenkl micrococcus, and the corresponding difference in the virulence of the antitoxins produced in animals. The obstacles which must be surmounted are very similar to those encountered in the manufacture of streptococcus antitoxin. It must also be borne in mind that all pneumonias are not caused by the pneumococcus, but that several other micro-organisms also not infrequently produce it; nor must we forget the important relations of the influenza bacillus in the disease as we now encounter it. An excellent résumé of what has already been accomplished with pneumonia antitoxin and serum has recently been published by A. H. Smith.[2]

In the meantime, how shall we treat our patients with pneumonia? Let it be premised that not every case demands treatment; patients presenting the normal picture of the disease, with a not too severe infection and a proper reaction by the system to the infection require nothing more than observation and proper nursing. When treatment is instituted, let it be remembered that we are not treating the pneumonia, but a patient with pneumonia. Also, that some will die in spite of all treatment, and that not a few perish as the result of it. The difference between the cases seen in the hospital-ward and in private practice is most striking. It would aid many a general practitioner to see patient after patient, some with large areas of consolidation, progress nicely on very simple treatment in the wards. To many the diagnosis, pneumonia, *eo ipso*, seems to demand the immediate exhibition of heroic remedies. Meddlesome relations of the patient are bad; meddlesome

[1] Read before Metropolitan Medical Society, October 24, 1898.

[2] *Trans. Amer. Climatological Association*, p. 22, 1889.

[3] The average mortality-rate of pneumonia from all causes and of all ages is much higher, as is best shown by the death-rate of 233,730 cases collected by Wells, of Chicago, *i. e.*, 18.1 per cent. (*Journal American Med. Assn.*, 1892, quoted by Osler, *Amer. Jour. Med. Sciences*, January, 1897).

[1] At the last Italian Congress of Internal Medicine, October, 1898, there was an extended discussion on Pane's antipneumococcus serum. The results of the experiments of Massalongo and Franchini seem to warrant the conclusion that Pane's serum "appeared to have a direct action on the evolution of the pneumococcus process, hindering its diffusion and aiding the process of resolution" (*Philadelphia Med. Journal*, p. 833, October 29, 1898).

[2] *Amer. Jour. of the Med. Sciences*, p. 377, October, 1898.

nurses are worse; but in pneumonia the worst feature of all is the meddlesome doctor.

When treatment is required it must be directed against the toxemia. Its object is fivefold: (1) To maintain life; (2) to support the heart; (3) to control undue fever; (4) to relieve suffering; (5) to control complications.

I. *To Maintain Life.*—This includes the nursing and diet, which are too familiar to require any details. I wish, however, to emphasize the importance of watching the stomach, for not enough attention is paid to ascertain whether it be unduly distended with gas or improperly digested food; even liquids may be improperly disposed of by the stomach. Routine percussion of the stomach is far more important than routine examination of the lungs. The heart must be spared in every way; let its burdens not be unnecessarily increased by upward displacement from the unduly distended stomach and intestines. All articles of diet which may produce flatulence must be rigidly excluded, and the milk must be adapted to the patient both in quantity and in preparation. Do not overfeed these patients; the disease is a very short one, and the patient's surplus fat and tissues will supply any deficit in the diet. Spare the stomach from undue medication as much as possible, and use the hypodermatic method in preference. Give water freely, either cold, hot, or carbonated (unless the patient is cyanotic), for it allays the thirst, reduces the fever and increases the elimination of toxins by promoting free diuresis. For the latter purpose the combination of a light Moselle wine with an alkaline mineral water is exceedingly useful.

II. *To Support the Heart.*—As well described by Douglas Powell[1] the dangers are three in number: (*a*) Impaired nerve power on the part of the pneumogastric branches of the cardiac plexus; (*b*) impaired nutrition of the hard-working heart-muscle from insufficient or badly aerated blood-supply; (*c*) mechanical tendency to overdistention of the right cavities and to depletion of the left cavities of blood.

The drugs which best meet these indications are strychnin, caffein, and nitroglycerin. Strychnin and nitroglycerin are best given in reliable tablets, the caffein in solutions of the benzoate or salicylate. If the results are not promptly obtained the drugs should all be administered hypodermatically. Nor should we hesitate to use them freely, for the action of each is clean cut, and any overdosage can be recognized very readily. My own experience has convinced me of the value of large doses of strychnin, to which Roosevelt called attention, in tiding a heart through the crisis. For the same purpose we may also resort to the hypodermatic injection of camphor in sweet almond oil. Osler also reports good results from hypodermoclysis. A struggling heart is often aided by an ice-bag over the precordium.

Van Santvoord has very recently published an interesting paper[1] which throws an entirely different light on the subject of heart failure in pneumonia. His views are based upon the important experiments of Romberg, which proved that the cardiac weakness in pneumococcus toxemia is due mainly to a vasomotor paralysis, it being clearly demonstrated that arterial pressure is low as the result of relaxation of the peripheral blood-vessels. This is entirely opposed to the prevailing view that the characteristic pulse in pneumonia is one of high tension. If subsequent observations prove the correctness of these views we should be cautious in the use of nitroglycerin for obvious reasons and should restrict its use to the temporary relief of embarrassment of the right heart.

These experiments may also clear up the question of the use of digitalis in pneumonia, about which so much bitter discussion has been waged. The extreme views of Petresco have not found favor. In answer to the low mortality of 2.06 per cent. reported by him and his school in 825 cases (I believe most of these cases were in soldiers, his statistics being those of the military hospital at Bucharest[2]) I may cite the extremely low mortality of 3.6 per cent. in 40,000 German soldiers. Petresco has certainly demonstrated that the danger from these colossal doses of digitalis (12 grams or 180 grains daily) is small, but according to Reiner[3] they must not be continued more than two days at the utmost. Another explanation of the tolerance for these large doses may be found in the experiments of Brunton and Cash,[4] which clearly show that the action of digitalis is lessened in febrile conditions. A safe guide for the use of this drug is that given by Von Juergensen[5]: "Digitalis is indicated as soon as the pulse rises in frequency and at the same time becomes irregular without any demonstrable cause in patients whose hearts were weak before the attack, or in patients whose hearts have weakened during the course of the disease. The fulness or emptiness of the pulse is important in determining this; if it is still full we can afford to wait a little, especially toward the end of the disease when not infrequently one of the indications of an impending favorable turn is slight irregularity of the pulse."

[1] *British Medical Journal*, p. 1153, November 9, 1895.

[1] *New York Medical Journal*, October 8, 1898.
[2] *Therapeutische Monatshefte*, p. 125, February, 1891.
[3] Aufrecht, "Die Lungenentzuendungen," p. 152, 1897 (Nothnagel's *Spec. Pathologie und Therapie*, Band xiv).
[4] *St. Bartholomew's Hospital Reports*, 1871.
[5] Aufrecht, *op. cit.*, p. 152.

III. *To Control Hyperpyrexia.*—In considering this indication it should always be borne in mind that temperatures ranging up to 104° F. are as normal a feature of pneumonia as dyspnea and rusty sputum. The view which is now generally accepted is that fevers up to this point are the normal reaction of the organism to the invading pneumococci. That these "normal" fevers are even of service to the patient is well shown in a table published by Douglas Powell,[1] in which he demonstrates that pneumococci grow to perfection at 35° and 37° C. (95° to 98.6° F.) and not at all at 40° to 42° C. (104° to 107.6° F.). He also directs attention to the value of the leucocytosis of fever in removing torpid or inert cocci. But, as in all symptoms of pneumonia, we must individualize, for in some patients a fever of 102° F. may inflict more damage than 105° may in others. The thermometer, then, is not the only gage as to the question of the fever being unduly high; the true guide is the patient's general condition.

The use of large, flat ice-bags is the most convenient method for the reduction of undue fever, two or three being applied to the affected area. They are usually well borne and add not a little to the patient's comfort. The ice-bag, however, is no specific against pneumonia, as Mays would have us believe. Occasionally the prolonged use of ice-bags causes intercostal neuritis, as I have observed in two cases. When the nervous symptoms are very pronounced we should not hesitate to resort to cold baths, using them in the same way and on the same general principles as in typhoid fever. If less heroic measures be preferred prolonged immersion in lukewarm baths (90° F.) may be used instead. The contraindications to cold baths are very extensive consolidation of the lungs, marked adynamia, very rapid breathing, feeble heart-action, and arteriosclerosis. Cold sponging and cold packs are often useful. Baruch recommends moist compresses which envelope the entire chest; their antipyretic effect is not very marked and extensive furunculosis (due to the staphylococcus aureus) was noted in two cases at the Mount Sinai Hospital. The large doses of quinin which formerly found so much favor are now seldom employed. The routine usage of the coal-tar products is now, fortunately, discarded; the occasional use of them in small doses is not objectionable.

IV. *To Relieve Suffering.*—The most striking indication under this head is the relief of the pleuritic stitches and the distressing coughs which wear out the patients and rob them of their much-needed sleep. These are best relieved by the hypodermatic injection of morphin, which may be resorted to as soon as possible without unnecessarily weakening the patient by temporizing with other means. The Paquelin cautery often acts magically in quieting pleuritic irritation; no one who has ever used it will temporize with sinapisms, blisters, leeches, poultices, etc. The ice-bag is also very valuable but does not act as promptly as either of the above. Quite recently I have been using a new drug, heroin (diacetic-acid-ester of morphin), as a sedative for these thoracic symptoms, and, so far as my present experience will allow me to judge, I believe that this drug will be found to be a valuable aid in quieting distressing coughs. It has acted well in some cases which were not relieved by codein. It is given in tablet triturates or powders in doses of $\frac{1}{12}$ to $\frac{1}{8}$ of a grain every four hours.[1]

Sleep is an imperative necessity for the overworked patient with pneumonia; to secure it is one of the most imperative indications in the treatment. The nervous exhaustion of which it is often the first herald, may be prevented by the timely use of hypnotics. Of these morphin and chloral are the best. Chloral, when combined with a cardiac tonic is perfectly safe. Balfour, the veteran clinician of Edinburgh, is most enthusiastic in his praise of it. We may also resort to cold packs or alcohol.

Of the value of oxygen in the relief of dyspnea and cyanosis it is difficult to give a final judgment. The opinion is slowly but surely gaining ground among the great clinicians that oxygen has been much overrated in the treatment of pneumonia. Theoretically its employment seems to be so well founded and its application is so simple, the apparent relief so striking that the universality of its use is not at all strange. But does it really do any good in those cases in which we want its effects most? The primary effects soon wear off in serious cases and the dyspnea and cyanosis increase in spite of its free use. Let the enthusiast for oxygen remember that the lung is just as consolidated immediately after the crisis as it was before it, and yet what a change there is in the patient's breathing. This proves that the dyspnea is not entirely mechanical in origin as is generally thought, but is mainly the result of the pneumococcus toxemia. In tiding the patient over sudden attacks of dyspnea and cyanosis oxygen is most useful.

V. *To Control Complications.*—Of these the most important are pleurisy with effusion, empyema, pericarditis, and endocarditis. The treatment of these conditions in pneumonia differs in no wise from that ordinarily pursued and hence requires no special discussion. However, it may be added that effusions into the chest, either serous or purulent, ought to be

[1] *British Medical Journal*, p. 1150, November 9, 1895.

[1] *New York Medical Journal*, November 26, 1898.

removed as soon as the amount of fluid becomes large enough to interfere with the lung in any way.

THE RATIONALE OF BALNEO- AND MECHANO-THERAPEUTICS (SCHOTT TREATMENT) IN CHRONIC HEART-DISEASES.

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CLINICIANS no longer regard the Schott treatment in the light of an experiment. They concede its value in properly selected cases of myocardial disease. The real point of contention is, How can we account for the immediate effects of the baths and exercise? From the vast amount of literature on the subject, three theories may be formulated, as follows:

1. Exercise increases the flow of blood through the tissues, thus promoting tissue respiration and improved nutrition, the heart, like all other tissues, participating in the vivification. The emptying of the capillaries and accelerated flow through the veins are also of benefit in diminishing the resistance to the contractions of the left ventricle.

2. The immediate effect on the heart is not real, the apparent reduction in its size being caused by an increased overlapping of the lungs.

3. The effect on the heart may be demonstrated ad oculos by means of the fluoroscope.[1] With the aid of the Röntgen-ray, according to Schott, an actual reduction in the size of the heart can be demonstrated.

According to the experimental and clinical observations of the writer, all three theories share in the explanation of the good results following the Schott treatment. The first theory is only general in its application; it practically explains the benefits achieved from massage, without reference to any special disease. The second theory has an element of truth. That the lungs dilate after the baths and exercise is unquestionably true, a fact which any one reasonably skilled in physical diagnosis may demonstrate. The only question is, Is the lung dilatation really dependent on the baths and exercise? This question may be answered in the negative, as the following facts will tend to prove: In a recent contribution, Moccucci,[2] at the suggestion of Professor Raimond, sprayed the left half of the abdomen with ether in twelve cases of enlarged spleen. Marked reduction in volume of the spleen was observed in all the cases. In repeating the experiments, the writer likewise noted a decided diminution in the area of splenic dulness in all individuals on whom the method was tried, irrespective of the fact whether enlargement of the spleen existed or not. Was this reduction of splenic dulness real or apparent? If apparent, to what was the reduction due? The reduction of splenic dulness was both apparent and real, but especially did the former prevail. If a spray of ether is directed over the region of the spleen, percussion of that organ shows a diminished area of dulness amounting in most instances to obliteration of the percussional area of dulness. Coincident with this phenomenon, one may note superresonance of the lungs contiguous to the spleen. It is the latter phenomenon which explains the apparent reduction in volume of the spleen. If the spleen is examined by aid of the fluoroscope during the application of the ether spray, a slight reduction in its volume may be observed, but it is in no wise commensurate with the reduction ascertained by linear percussion. Therefore, one is justified in concluding that the splenic reduction is more apparent than real, and consequently another explanation must be sought for the diminished area of splenic dulness.

That the cause is resident in the lungs, simple experiments will show. If the ether spray is directed over the heart region the percussional area of that organ will be reduced at once; in fact, the superficial area of cardiac dulness may be obliterated by this maneuver. Similarly, if the spray is directed over the liver region the superficial area of dulness of that organ can be reduced at once. If the spray is directed over the borders of the lungs posteriorly, the lung borders will descend from two to four inches, dependent on conditions which will engage our attention in another communication. Suffice it to say at this time that dislocation of the lung borders by forced inspiration never approaches the dilatation produced by the ether spray. Further experiments demonstrated in brief the fact that the application of any cutaneous irritant, whether the latter be mechanic, chemic, or electric, will always induce acute dilatation of the lungs. Even in emphysematous individuals the application of a cutaneous irritant will still further augment the existent lung dilatation. Acute lung dilatation is a well established condition occurring in capillary bronchitis and in bronchial asthma. Unlike alveolar emphysema, the alveolar ectasia is temporary and capable of eradication when the cause is removed. The writer has shown[1] that acute dilatation of the lungs can be invoked in healthy persons by irritation of the nasal mucosa. The question naturally arises, By what means are we able to establish the fact that

[1] *Medical Record*, March 26, 1898. *Deutsche medicin. Wochenschrift*, No. 14, 1897.
[2] *Riforma Med.*, p. 208, 1898.

[1] *New York Medical Journal*, June 13, 1896.

the application of any cutaneous irritant will cause acute dilatation of the lungs, a condition, it may be mentioned parenthetically, which is of only a few minutes' duration? In making such a hypothesis tenable we summon to our aid the conventional physical signs and the fluoroscope. These aids show that when the skin is irritated by means of cold, by friction, or by a strong faradic current lung dilatation will ensue. The degree of lung dilatation is dependent on the character of the irritant and the severity of its application. The response of the lung to dilatation is always greatest in that part of the lung contiguous to the source of cutaneous irritation.

The physical signs that enable one to recognize lung dilatation are: (1) Diminished respiratory excursions of the lung borders. (2) Extension of the pulmonary percussion-note and obliteration of the cardiac and splenic areas of dulness. (3) Hyperresonance of the lungs. (4) Absence of the apex beat. The fluoroscope is another valuable aid. Auscultation is most untrustworthy as a sign, insomuch as the artificial lung dilatation is of very short duration, not lasting in the majority of instances longer than three minutes after the source of cutaneous irritation has been done away with. Lung dilatation, it must be observed, does not involve both lungs, nor even an entire lung; it spreads from the source of cutaneous irritation, involving primarily circumscribed parts; then if the irritation is severe enough, more remote parts may be involved. In lung showing diminished resonance, the latter can always be increased by rubbing the skin vigorously over the lung percussed. The writer has learned to rely on this sign, which he calls the *lung reflex*, in all doubtful cases of lung dulness, and to test the resiliency of the pulmonary tissue. He has recently directed attention to this phenomenon in the study of pulmonary atelectasis by means of the Röntgen-ray.[1]

Admitting that lung dilatation ensues by the massage and the baths of the Schott method of treatment, the query naturally arises, Does the lung dilatation effect any reduction in the volume of the heart? This must be answered in the negative. Physiologic experiments demonstrate conclusively that the cavities of the heart are filled with the largest amount of blood during the height of inspiration, consequently the area occupied by the heart is greatest during this phase of respiration. The fluoroscope also demonstrates this fact. There is one fact which must be borne in mind, and that is, that a dilated lung is an excellent depletory channel for a heart surcharged with blood, and that if one is desirous of phlebotomizing a patient to aid an overtaxed heart, the purpose can in a measure be accomplished by securing lung dilatation. In this way lung dilatation helps to secure the results achieved by the Schott treatment.

The third theory, so emphatically espoused by the originator of the Schott method, is undoubtedly correct. The demonstrations of Schott[1] convey conviction to the mind of the impartial reader. Do the baths and massage, according to the Schott method, cause this reduction in the size of the heart? The writer answers this query in the negative. He believes that cutaneous irritation, the result of the resistance movements and the baths, can account alone for the reduction in the area of heart dulness. True, lung dilatation following exercise and the baths will diminish the superficial area of cardiac dulness, but the writer has found that lung dilatation lasts only a few minutes, the lungs after this period receding to their original position, yet the diminished area of cardiac dulness persists. Therefore, one is constrained to admit that the myocardium is responsive to the Schott treatment irrespective of any other factor beyond reflex contraction of a muscle following peripheral stimulation of the cutaneous sensory nerves. In children, less often in adults, one may demonstrate by means of the fluoroscope the great contractility of the heart upon the application of a cutaneous irritant to the precardial region. The irritant employed by the writer in his experiments has been a spray of rhigolen. In one instance, the case of a child with a normal heart, the left ventricle was made to recede almost an inch and a half upon application of the spray. The writer does not deny that systematic resistant movement may influence the heart reflex, perhaps even more so than cutaneous irritation alone. What he wishes to prove is the fact that the sensory nerves of the skin are in a great degree responsible for the good effects observed after the Schott treatment.

The writer employs in many of his patients vigorous cutaneous frictions, in lieu of the conventional Schott treatment, with results nearly as good as by the latter method. Relief of dyspnea follows, and there is a marked reduction of the pulse-rate, together with an increase in volume and force.

The following conclusions may be formulated:

1. Lung dilatation follows the exercise and bath treatment of the Schott method, the dilated lung acting as an excretory channel for the overburdened heart.

2. The cause of the lung dilatation is dependent on cutaneous irritation provoked by the exercise and baths.

3. The degree of lung dilatation may be increased by more powerful cutaneous irritation.

[1] *Philadelphia Medical Journal*, November 26, 1898.

[1] *Medical Record*, March 26, 1898.

4. A decrease in the volume of the heart likewise ensues after the Schott treatment.

5. This reduction in cardiac volume is likewise provoked by cutaneous irritation, which is one of the real factors involved in the Schott treatment.

6. Vigorous cutaneous friction by means of a wire brush, such as is employed in the application of the faradic current, will accomplish almost as much as the baths and exercise of the Schott treatment. At the same time, it is a simpler and more expeditious as well as inexpensive method of treatment.

NEURONS; THEIR RELATIONS TO THERAPEUTICS, MEDICAL AND MECHANICAL.

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THE minute anatomy of the nervous system has been so carefully studied of late years, and the theory of its functions has changed so rapidly that but few of us older fellows have been able to alter the views that were so positively taught twenty-five years ago. And, indeed, among modern students of the nervous system, its nomenclature, structure, and functions are not by any means uniform, indicating either difference of opinion or carelessness of study.

For our present purpose it will be sufficient to recall a few of the recent and most generally accepted investigations in this field. The neuron consists of the nerve-cell and its branches; the latter are one or two axis cylinders, called neuraxons, and from these proceed side branches called collaterals, which end in tufts of fibrils called terminal arborizations. These terminals communicate with the shorter and more numerous processes of the cell, the dendrites or dendrons, so called for their tree-like appearance.[1] The axis cylinders and their collaterals form the nerve-fibers, and their function seems to be to convey impulses from their cells through their terminal arborizations to the dendrites of other cells which receive the impressions. For a long time physiologists firmly believed or taught that the processes of nerve-cells acted by *continuity*, but more recent researches indicate that they act by *contiguity*, and not by continuity at all. But it is difficult to conceive how this can be unless the nerve-cells and their processes are surrounded by a fluid medium. The neuroglia-cells form an insulating material between the nerve-cells, and must either be active or passive when the neurons are in contact or not in contact. According to the most authoritative histologists, the neuroglia-cells are passive, but a very distinguished one, a Spaniard—Ramon y Cajal—is of the opinion that the neuroglia-cells are the active agents, and that when they are relaxed their processes penetrate between the dendrites and terminal arborizations of the nerve-cells, and hinder the transmission of nerve-currents. When the processes of the neurolgia-cells are retracted, then the nerve-cell projections are allowed to come into contact. The neuroglia-cell processes have numerous short arborescent collaterals, and Cajal thinks he has observed two phases of them: one, that of contraction when the cell-body augments, while the processes shorten and the branches disappear; the other, that of relaxation when the processes of the neuroglia-cells are elongated. Hence, it might appear that the movement on the part of neurons is a passive one, depending upon the interposition of the insulating material. It is more than likely that the activity of the neuron has been mistaken for that of the neuroglia.

Be that as it may, it seems to be now pretty unanimously conceded that nerve-cells and their processes (neurons) are distinct and separate from each other, and, therefore, the theory that they somehow act upon each other by contiguity and not by continuity would seem to have some foundation in fact. In health, when free from fatigue, these nerve-cell projections are supposed to come into contact with each other and form various combinations of thought and action, and the machinery of life goes on when the cog-wheels connect, so to speak. Having reached the limits of fatigue, their terminal arborizations and dendrites no longer come in contact by interlocking, overlapping, or however it may be, but recede from each other, and we have in the brain sleep, in the muscles relaxation, until rest brings them back to a normal condition, renews their waste products, and supplies them with nourishment, when they are again ready to respond by contact to appropriate stimuli. When we have disturbance, functional or organic, then the proper combinations of cells no longer connect for the performance of healthy, voluntary, or involuntary functions.

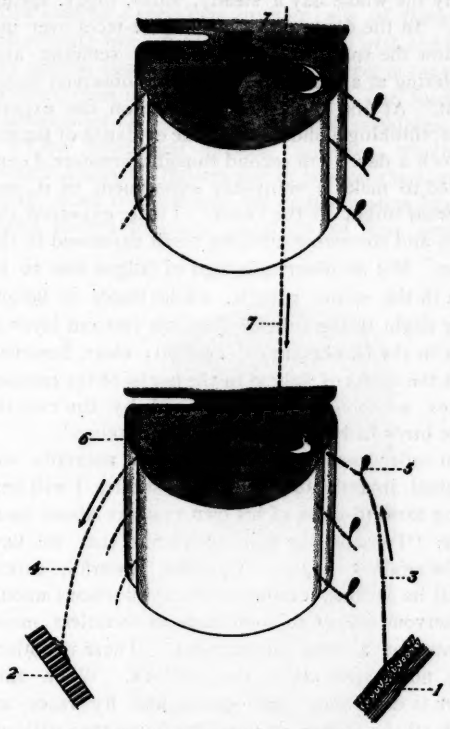
Hypnotism has been invoked to throw light upon this interesting subject.[1] The state of lethargy and

[1] All of the recent medical dictionaries, with the single exception of Lippincott's, either give no definition at all of the new neuron, or else they refer to something else. Thus, "Foster's Encyclopædic Dictionary" for 1894 defines neuron in these words: "In the arthropods, the nervous part of the eye." Gould's, of 1894 and 1898, says neuron is "the cerebro-spinal cord taken as a whole"; also, "a vein or costa of an insect's wing." Dunglison's Dictionary of 1895 does not condescend to notice the meaning of the word; neither does Billings' of 1890. Neither does Clarkson's Histology of 1896 nor Foster's Physiology of 1896 mention the neurons. The American Text-Book of Physiology of 1896 calls the neuraxon the neuron in these words: "From most cells there arises one principal branch . . . called a neuron," thus differing from the classification of Waldeyer, which is now the most recognized.

[1] Dercum, *American Journal of the Medical Sciences*, August, 1896.

relaxation induced thereby would be explained by the retraction of the neurons in the brain so that their terminals do not connect or articulate with the dendrites of the neurons in the spinal cord. Cata-

FIG. 1.



PLAN OF VOLUNTARY MOVEMENT.

1, sensation surface. 2, striated muscular fiber. 3, sensitive nerve-fiber (centripetal) terminating by an arborization around a motor cell and its dendrites. 4, motor nerve-fiber (centrifugal) terminating on the muscular fiber by an arborization (terminal plate). 5, cell of the spinal ganglion constituting with its two prolongations the peripheral sensitive neuron. 6, cell of the anterior nerve with its protoplasmic prolongations and nerve-fiber constituting the peripheral motor neuron. 7, a pyramidal fiber descending from the central cortex, and bending at 7' so as to terminate by a free arborization around the motor cell.—(From Testut's "Anatomy," p. 23, 1897.)

lepsy would then be due to too close contact of the same, manifesting itself by an increase of muscular tone; somnambulism by the combination of certain neurons, whilst others are retracted in sleep, and the sudden disappearance of hysterical paralysis by a removal of contact of the various nerve-cell combinations at fault.

The behavior of nerve-cells and their processes, theoretically, at least, would seem to be similar to that of the white blood-corpuscles in their peculiar ameboid properties. Under the microscope leucocytes anesthetized by the absence of oxygen and the presence of carbonic acid would seem to have their pseudopods retracted. This is thought to form a basis for the histologic theory of sleep, the prolongations of the nerve cells being retracted during sleep and expanding when awake, in dreams some being partially or wholly connected, whilst others that go to make up the conscious *ego* are still contracted in slumber. When we are profoundly absorbed in abstract thought we do not hear the ordinary sounds around us, for certain of our cerebral cells seem to have the faculty of breaking their communications, of somehow closing the door to obtrusive sensations.

Wiedersheim[1] observed in the *Leptodera hyalina* (a species of worm belonging to the nematods) that the nerve-cells were not immovable, but presented changes of form—ameboid-like movements. He studied the living neurons in the brain of this little animal which has so transparent a skin and body that the cells of its brain can be observed while in full activity. These cells seemed to be endowed with a wonderful degree of mobility, changing their forms, protruding their ramifications, and drawing them in, as the ameba protrudes and draws in its pseudopods. The peripheral prolongations of the olfactory cells are pretty surely known to be endowed with motion, and these are quite homologous to the prolongations of the protoplasm of the neuron.

By far the most interesting, satisfactory, and conclusive evidence in favor of this captivating theory that nerve-cells and their projections act by contiguity and not continuity is that of Professor C. F. Hodge of Clark University, Worcester, Mass. His experiments and observations, entitled "A Microscopical Study of Changes Due to Functional Activity in Nerve-Cells," are given in detail in the *Journal of Morphology* for November, 1892. It is one of *the* articles of the Nineteenth Century, and as the journal in which it is published is accessible to but few readers, the methods and results are here reproduced at a length that is more worthy of them than the brief manner in which they have hitherto been referred to. The spinal-root ganglia were chosen for observation. The plan was to stimulate a nerve going to one or more of these ganglia on one side of the animal leaving the corresponding ganglia on the side at rest for comparison. The right side was always chosen for stimulation. The stimulated nerve was never divided so that the contraction of the muscle could indicate the healthy condition of the nerve. At the end of the desired length of time, the stimulated ganglion with its mate on the other side were excised, treated alike, and put on the same slide of the microscope. The following results are from fifteen experiments on frogs and eleven on cats. As the most instructive series is in Table IX, it will be first presented. The experiments were

[1] *Anatomischer Anzeiger*, 1890.

on six cats, in which the right brachial plexus of each was stimulated by an electric current for five hours, fifteen seconds each minute. At the end of five hours the shrinkage of the nuclei was found to be 48.8 per cent. It required fully twenty-four hours of rest for the cells and nuclei to resume their natural size and appearance. The fatigue caused the interstitial substance of the cell to disappear, as shown by vacuoles and lighter granulation, while the nucleus collapsed bodily.

TABLE I.—This showed that stimulation of two and one-half hours, intervals of rest and stimulation being two minutes each, produced a shrinkage of the nuclei of twenty-four per cent.

TABLE III.—Stimulation of three and one-half hours, five stimuli every second, one minute of stimulation alternating with one minute of rest, to sciatic ganglia of right side, caused a shrinkage of thirty-six per cent.

TABLE V.—Stimulation of seven-hours' duration, at intervals of one minute, in a cat caused an average shrinkage of 28.6 per cent.

To show how very carefully these observations were conducted, one hundred cells with their nuclei were measured and their mean diameter ascertained. As a result of fatigue from electrical stimulation there was seen marked decrease in the size of the nucleus, with change from a smooth and rounded outline to a jagged and irregular outline; loss of open reticular appearance, with darker stain. The cell protoplasm showed slight shrinkage in size, vacuolation, and lessened power to stain. The cell-capsule was decreased in size.

The processes of recovery were the reverse of those of fatigue. The protoplasm seemed to recover rapidly, for at the end of six and one-half hours little or no vacuolation could be seen. The nuclei, on the other hand, recovered slowly, not being entirely completed in twenty-four hours.

The effects of normal daily fatigue on sparrows and swallows were also most carefully studied in the same article by Professor Hodge. The nerve-cells of rested birds in the morning were compared with nerve-cells of birds of the same size in the evening after they had been flying about all day. The examinations of the specimens showed a great amount of change after a day's exercise. It exceeded that obtained by artificial stimulation. The greatest per cent. of shrinkage of nuclei, 69.7 per cent., was found in the occipital cortex of a female sparrow that had been working hard all day building her nest. (What could be more interesting?) The spinal ganglion cells of the same bird showed the next highest per cent. of shrinkage, 64.5, as an index of the amount of fatigue. The recuperation from a night's rest must be very great, and in all probability makes up this waste of nerve-cell tissue.

One of his experiments is so full of interest that I give it here in his own words: "On the morning of February 17th it began to rain, and continued nearly the whole day a steady, warm, foggy, spring rain. In the dense cover of the pine-trees over my window the sparrows spent the day scolding and chattering at a great rate. None was observed flying about. At first I decided to abandon the experiment, thinking I should find little evidence of fatigue on such a day. On second thought, however, I concluded to make a rainy-day experiment of it, and see what might be the result. I little expected the sharp and somewhat amusing result expressed in the table. Not an observable sign of fatigue was to be seen in the spinal ganglia, while traces of fatigue were slight in the cells of Purkinje (second layer of cells in the cerebellum). Perfectly clear, however, were the marks of fatigue in the nuclei of the cerebral cortex, as though while confined by the rain the little birds had kept up a deal of thinking."

In order to show how clearly and naturally this original investigator thinks and studies, I will here bring forward some of his own remarks about swallows: "Perhaps the most active bird that we have is the swallow. Quick, vigorous, powerful, careful in all its actions, it must require an enormous amount of nervous energy to coordinate its countless movements for a long summer day. There is nothing lazy nor stupid about the swallow. When their work is done they play games and fly races, and with all the energy required for flying they still have enough left to do no end of talking, for their cheerful *switchern* is continually in my ears while I write. At one hundred miles an hour for ten hours, and I have observed them as early as five o'clock in the morning and as late as eight in the evening, a swallow might cover a distance of 1000 miles in a single day. If a bullet of the same might were to traverse the same distance at the same speed, an enormous explosion of energy would be required, and the living arrow can require no less.

"At five o'clock in the morning a large male sparrow was shot, and within five minutes his brain and spinal ganglia were in their proper hardening fluids. A few minutes before eight in the evening another male swallow was taken down, and by eight his brain and spinal ganglia were treated like those of his brother in the morning. Signs of fatigue were everywhere present in the parts examined, but the brains gave the most agreeable surprise. The cerebellum showed the highest per cent. of loss, nearly ten per cent. more than the cerebral cortex. To the cerebellum is ascribed the work of coordination,

and where could be sought an instance of more delicate manipulation than must be required to drive the wing of a swallow as it flits and whirls and balances and wheels and darts the whole day long?"

The brains of honey-bees were also compared, and it was found that those that had been at work all day showed a shrinkage in their cells of from nine to seventy-five per cent. as compared with the brains of similar bees in the morning. Great is the recuperation from fatigue of honey-bees. The food they gather must be very nourishing and sustaining.

That celebrated poison, *woorara*, which the South-American Indians use to poision their arrows with, when injected into the human system has long been known to cause paralysis of the terminal branches and peripheral plates of the motor nerves (peripheral neurons, we must now say), so that the nerve-force no longer connects in such a way as to produce muscular contraction. This poison, according to the experiments of Hammond and Weir Mitchell, seems to act directly upon the heart, probably through the ganglia in its tissue, as well as upon the voluntary muscles. It also destroys the reflex functions of the spinal cord. Strychnin, on the other hand, is equally well known to increase the excitability of the nerve-cells in the spinal cord, manifesting itself in muscular spasm when taken in poisonous doses. In the case of woorara, it might be said that the protoplasmic processes of the nerve-cells can no longer come in contact with the projections of other nerve-cells; in the case of strychnin, that they are in too close contact and cannot let go. It is not improbable that the action of all medicines, and the different effects of the same medicine when taken in small or large doses, may be partly explained in this way by their producing an ultimate chemico-mechanical effect on the nerve-cells in different parts of the body. It is also supposable that the action of different poisons on the nervous system, whether generated in the body itself or introduced from outside may, in great part, be explained in the same way. Thus before long we may have a new system of therapeutics based on a new system of neuropathology.

FIG. 2.

FIG. 3.

FIGURE 2.—Portion of field from third brachial plexus of an English sparrow, killed December, 1891, at 7 A.M. Osmic acid 1 per cent., two hours.

FIGURE 3.—Field of corresponding ganglion of English sparrow killed the same day at 7:30 P.M. Like preparation with Figure 2.

These fields demonstrate extreme daily fatigue with probably some lack of food. The queer-shaped clear spaces in Figure 2 are seen to be replaced to a great degree in Figure 3 by faulty outlined irregular vacuoles. Nuclei in Figure 3 appear shrunken as in cases of electrical stimulation.—(Hodge, *Journal of Morphology*, vol. vii, p. 168, 1892.)

We have all felt the lassitude of extreme fatigue, which might now be explained by saying that it is due in great measure to shrivelling of the nerve-cells, preventing contact of their projections, and most of us when young have probably suffered from cramp in our calves after a hard-day's tramp, which, according to this theory, would be due to the nerve-cell processes, the terminal arborizations and the dendrites having got too closely interlocked from the irritation of waste products, showing itself in muscular spasm. That we may have from retained waste products of excessive exertion, both relaxation and cramps, is not without its analogy in poison introduced into the system from without. Lead, for in-

stance, causes paralysis and relaxation of the extensors of the hands, while in the abdomen it often induces spasms, cramps, and colic. From experiments in animals, Dr. Earnest Harneck[1] concluded that lead colic is due to intense excitation of the intestinal ganglia by the lead, producing arrest of peristalsis from spasm of the muscular coat. Shall we say that the neurons that preside over the nerves, that move the extensors have their protoplasmic processes immovably retracted so that they can no longer vibrate and articulate, while those that control the intestines and abdominal walls are in too close connection, spasmodically interlocked, or anchylosed?[2] However this may be, strychnin is one of the remedies relied upon for the paralysis of lead after its elimination by other remedies, and perhaps it acts by bringing the neurons into better condition for normal contact. A new explanation may thus be afforded for the action of excitomotor remedies, such as strychnin, ergot, digitalis, etc.; and also, though just the opposite for depressomotors, such as the bromids, chloral, gelsemium, conium, etc. The action of other remedial agents, internal and external, might be explained more or less in the same way.

Tea and coffee are said to stimulate the ameboid movements of protoplasm. At times they certainly aid in stimulating thought and in forming new combinations of ideas, perhaps by bringing about different relationships of the cortical neurons. Tobacco, on the other hand, by its sedative and relaxing properties seems to suit some students better in the collection of their thoughts, which, according to this theory, would be by causing relaxation of cortical neurons that had been too much preoccupied in loving embrace or close combat, and thus allowing others to form new combinations.

The effects of tonics, stimulants, and sedatives, whether of a chemical or mechanical, electrical, thermal, or dynamical nature, upon central and peripheral neurons are probably similar, simultaneous and parallel to what they are upon voluntary and involuntary muscular fibers. Hence the state of the muscles is very likely a good barometer of what is going on at the other ends of the nerves that supply them in brain or spinal cord. Every muscle-reader is a mind-reader, and he who has the *tactus eruditus* well developed, be he a physician or a masseur, has an immense advantage in the diagnosis and treatment of neuromuscular troubles. In two cases of hemiplegia recently under my observation there was much spasm (contracture) of the flexors of the hand and arm. The patients were both receiving the faradic current, which is well known to stimulate muscular contraction, and were taking strychnin internally. As soon as the faradism was stopped the spasm became less; and later when the strychnin was left off there was still greater improvement; the contracture almost entirely disappeared, allowing the opposing paralyzed extensors to come into play as much as they could. In these cases the effects of the strychnin and faradism might have been, and probably were, simultaneous upon central and peripheral neurons, terminal arborizations, and muscular fibers.

The effect of stimulation upon protoplasm is, when sufficiently strong, to cause an immediate cessation of movements and withdrawal of protruded processes into the main substance. Upon cessation of the stimulation, if it has not been too strong, the movements will begin again, but if so severe as to injure the living substance they stop forever. Mechanical stimuli and abrupt changes of temperature act in like manner. It is quite conceivable that nerve cells and their projections behave in the same way.

Recent experimental studies tend to strengthen the theory that neurons act by contiguity and not by continuity. After slight injury to the head and spinal column Lutzenberger studied the changes in the nervous system of guinea-pigs and found that the general disorders of nutrition showed themselves most prominently in the increase of the number of ganglion-cells that presented all styles of retrogression.[1] Parascondola has also made an extensive study of the effects of shock upon guinea-pigs. He stretched them out flat and gave them a sharp blow upon the abdomen with a flat ruler. The animals reacted in various ways. Most of them after a period of quiet seemed to recover; but in from thirty-six to forty-eight hours they died with symptoms of exhaustion or shock. The cerebrum, cerebellum, medulla, and spinal cord were removed for microscopic examination. The alterations found were deformities of the cell bodies to the extent of actual atrophy, node-like swellings on the dendrites and fragmentation of the same. There was also found degeneration of the posterior roots, proceeding even to degeneration of the posterior columns. Changes in the cellular protoplasm were also seen—rarefaction proceeding to vacuolation in the nucleus, and vesicular swelling of the nuclear protoplasm.[2]

[1] Biddle's, "Materia Medica."

[2] Dr. T. Lauder Brunton tells us that one of the most painful experiences of his life was that of being nearly tickled to death by a nurse when he was a small boy. He can never forget the agony of it. This leads him to believe the statement that Simon de Montfort, during the persecution of the Albigenses, put some of them to death by tickling the soles of their feet with a feather. The neurons may have become so tightly interlocked that they could not let go. Perhaps something of the same kind occurs in tetanus.

[1] *Annali di Neuroglia*, 1897.

[2] *Archives de Physiologie normale et physiologique*, 1898.

These were very serious alterations and all tend to throw light upon the nature of fatigue, shock, neurasthenia and hysteria arising from injury. But percussion, though harmful in large doses, is often beneficial in small ones, stimulating languid nerves and muscles, and sometimes relieving painful ones by over-inciting them and wearing out their irritability, and presumably at the same time favorably influencing the vibrations and connections of nerve-terminals and dendritic processes.

It seems rather curious that those who have furnished the clearest objective evidence that nerve-cells and their projections act upon each other by contiguity and not by continuity are not the ones that have advanced this theory at all. Thus Professor Hodge in the *Journal of Morphology* for 1892, the New York *Medical Record*, March 26, 1898, and in previous publications says nothing of this theory, and yet he has furnished the clearest objective evidence of it. Credit is given to two Frenchmen, one, M. Lépine, for having first advanced this theory in the *Revue de médicine* in 1894, and the other, M. Mathias Duval, for agreeing with him in the *Comptes rendus de la societé de biologie*, 1895. These gentlemen must have exceedingly brilliant imaginations, for they scarcely ever refer to the labors of others, and not at all to those of Professor Hodge, that would furnish them with objective evidence confirmatory of their theory. This seems to be always a rapid way of becoming famous. Their hypothesis seems to have been evolved from a single case of hysteria of a peculiar kind that suddenly passed from complete deafness to acute hearing, and which they explained by saying that "the anesthesias, sensitive and sensorial, and the motor paralysis in the hysterical are due to imperfect contact between the ramifications of the nerve-cells"; or the disappearance of these morbid states is owing "to an erethism of the prolongations of the nerve-cells, by which they are brought into normal contact, attention sufficing to reestablish the contacts."

When distinguished gentleman like these are allowed to hold this theory on such insufficient evidence and with so little regard to the testimony of others, it behooves us to ask if this theory or something like it has not been promulgated before, for it has given these Frenchmen great renown, and neurologists are disposed to believe in it. William H. Munroe of Boston was a very intelligent layman who had studied anatomy and physiology to a moderate extent. He died in 1887, at the age of eighty years. For the last thirty years of his life he was firmly and enthusiastically of the opinion that somehow or other in disease the nerves did not connect properly, and "to remedy this evil" (as he used to say), and to make them connect he relied on manipulation by hand, a mode of treatment in which he became very skilful, and which, viewed from a recent light, he not altogether inappropriately called the nervous-adjustment cure. He had a large clientele of intelligent people, most of whom were fascinated with his theory, while physicians smiled incredulously at the theory and the seeming irregularity of the practice. An association with him for three years, before I studied medicine, from 1867 to 1870, convinced me of the efficacy of this treatment in disturbances of nerves, muscles, and joints, mostly of a chronic nature. From observations of massage in this country and abroad, extending over thirty years, I may, perhaps, be allowed to say that he certainly had the best single method of this art that I have yet met with. Wherever there was undue tension of the tissues, there the nerves were supposed to fail in properly connecting, and the thorough, agreeable, and efficacious manipulation of the offending region often proved beneficial; and even when it failed to do good, it left behind it a pleasant impresson far different from that after the scraping, greasing, or slapping that too often passes for massage. Indeed, the word massage is becoming subject to so much abuse that, perhaps, such an expression as manipulation or manual treatment had better be adopted in place of it, for more depends on the skill and experience of the manipulator and his understanding of the disorders, than in the use of any "highfalutin" words to cover ordinary rubbing.

From the days of Hippocrates, history affords parallel examples of theories formed in advance of their proof. For our present purpose we will cite but one, that of Asclepiades (128–56 B. C.), a Greek physician, who founded a school and practised at Rome, and was very popular with the Romans on account of his simple and agreeable remedies. He thought that physicians ought to cure their patients safely, quickly, and pleasantly, and with this object in view he relied mainly on diet, bathing, exercise, and friction. He considered that the body had innumerable sensitive canals running through it, in which moved the nutritive juices and plastic atoms. So long as this movement went on without disturbance, health continued. But disturbance caused sickness, and the normal movement of these juices would be disturbed by abnormal increase of their atoms, by their irregular distribution, by too great blending together, and by too swift movement of the same, and also by dilatation and constriction of their canals. Proceeding on these principles, or theories, rather, Asclepiades renounced almost entirely the use of medicines, and

attempted to restore free movement of the nutritive fluids and plastic atoms by means of rubbing. The soporific effects of gentle stroking he also recognized. With friction he combined active and passive motion, and no doubt but he was an adept at massage in his day.

Asclepiades thus foreshadowed the discoveries made long after of the functions of the vasomotor nerves and of the muscular coat of the blood-vessels in regulating the caliber of these vessels; and to a large extent, also, he predicted the pathology of inflammation in the congregating of white blood-corpucles.

Seen from the light of recent studies of the neuron, the experiments of Professor Golz of Strassburg, narrated in *Virchow's Archives* for 1875, possessed new interest. After opening the abdomens of animals and applying percussion by light and frequent blows over the stomach and intestines, the peritoneum at first became paler from constriction of the vessels, but continuance of the percussion caused dilatation. When the percussion was first applied over the abdominal walls, and these opened afterward, it was seen that the vessels of the abdominal cavity, especially the veins, were dilated and distended with blood. The heart's action was considerably retarded, owing to the reflex influence of the percussion upon the inhibitory action of the vagus, and also to the sudden withdrawal of blood into the vessels of the abdomen. Continued still longer, the pulsations of the heart became less, and finally ceased, as did also respiration.

Here we see the primary effects of percussion (a form of massage) causing constriction of blood-vessels from stimulation of their vasomotor nerves and muscular coat. Longer continued, this same percussion produces an opposite effect, dilatation of vessels from over-inciting them, and wearing out their irritability, and with still more of it pulse and respiration cease. Corresponding to the first influence of percussion, we would now suppose that the projections of the neurons had been brought into closer juxtaposition; to the second, that they had got somewhat tired out and relaxed; to the third, that they had lost their capability forever to connect, and the animal dies. It would be exceedingly interesting to examine the neurons connected with the solar plexus of prize-fighters when they knock the wind out of each other by a blow upon the epigastrium.

If this theory of the mechanical action of nerve-cells and their processes holds, then remedial mechanical measures, such as massage, kneading, stroking, percussion, passive and resistive movements, all of which act upon peripheral and central neurons, will receive an additional explanation to what we already know of their effects upon skin and muscles, blood-vessels, lymphatics, and nerves. We would then say of a nervous person with too much tension, who cannot let himself go to rest, that under the influence of appropriate manipulation he is soothed and quieted to sleep, that his peripheral and central neurons have been coaxed to relax; while on the other hand, if such a patient should receive too vigorous manipulations the peripheral irritation caused thereby would induce both voluntary and involuntary resistance, increase the tension and bring the processes of the neurons into still closer contact. Or take languid individuals with flabby tissues and give them pretty vigorous manipulation. Their muscles tone up and become firmer; then we will have to presume that their neurons have come into closer and more natural contact. It was old Hippocrates who said in his aphorisms that "Hard rubbing binds; soft rubbing loosens; much rubbing causes parts to waste; moderate rubbing makes them grow."

By means of training and repeated efforts paths of resistance in brain, spinal cord, and nerves are made easier, thought, will, and action become less difficult, and the terminal arborizations of the neuraxons and their collaterals connect more readily with the dendrites of the nerve-cells, constituting what is usually called education, which should be so adjusted

> "That outer man and inner soul
> "Maintain their balance true
> "Till every string on being's lyre
> "Gives forth its music due."

On the whole this theory that nerve-cells and their processes act upon each other by contiguity and not by continuity would seem to be consistent with the behavior of tissues in other parts of the body, and even with the propagation, prolongation, and cessation of life itself.

CLINICAL MEMORANDUM.

THE DIAGNOSIS OF TRICHINOSIS BY MEANS OF THE GREAT INCREASE OF THE EOSINOPHILES IN THE BLOOD; REPORT OF THE FOURTH CASE.

BY THOMAS R. BROWN, M.D.,
OF BALTIMORE, MD.

IN 1897, in reporting the great increase of the eosinophiles in the blood in a case of trichinosis[1] this being the first mention ever made of an association between trichinosis and eosinophilia, I made use of the following words: "The presence of such quantities of eosinophiles in the blood suggests their possible diagnostic value in trichinosis, and perhaps, if it be found on further studies to be characteristic of this disease, may help to clear up the

[1] *Johns Hopkins Hospital Bulletin*, pp. 79-81, April, 1897.

cases which are regarded *intra vitam* as rheumatic in nature and which, years afterward, the autopsy-table shows to have been cases of trichinosis." That the disease is not such a rare one in America as is usually supposed and that it may be definitely diagnosed by the remarkable increase of the eosinophiles in the blood is amply proven by the results obtained since that time.

In 1898 I reported[1] two additional cases wherein, from the eosinophilia alone, the condition of trichinosis was diagnosed, and in all three cases, living, actively motile, non-encapsulated trichinæ were found in small pieces of muscle removed from the patient. The concluding sentences of that article may be of interest in this connection: "From these observations it is fair to conclude:

"1st. That there is a marked increase in the percentage of eosinophilic cells in the blood in trichinosis.

"2d. That the increase may be used as a diagnostic sign in this disease.

"3d. That this diasease in its sporadic form is more common than has hitherto been supposed, as shown by the discovery of the three cases above described within a comparatively short period at the Johns Hopkins Hospital.

4th. That a systematic examination of the blood should be undertaken in cases with indefinite intestinal, muscular or articular symptoms in the hope that in some, at least, of the hitherto doubtful cases a diagnosis may be made."

I have now to report another case of this disease, diagnosed entirely by means of the blood examination, the diagnosis being verified by the subsequent removal of a small piece of muscle and the finding of living, actively motile trichinæ therein.

Date. 1898.	Leucocytes, per c.mm.	Percentage of Various Forms.			
		Polymorphonuclear Neutrophiles.	Small Mononuclears.	Large Mononuclears and Transitional Forms.	Eosinophiles.
Aug. 8.	18,100				
Aug. 10.					48
Aug. 13.		43	7.3	1.7	48
Aug. 28.	8200	45	14.5	2	38.5
Sept. 4	7900	49	18.5	2.5	30
Sept. 18.		55.2	19.6	2	23.2
Sept. 25.	9600	61.5	16	2.5	20
Oct 2.	8750	54	19.5	2.5	24
Nov. 5.		49	40	2.5	8.5
Nov. 13.		64.5	27.	3	5.5
Nov. 20.		61	27	4.5	7.5

RESULT OF BLOOD EXAMINATION IN A CASE OF TRICHINOSIS. (J. L., CASE IV.)

J. L., white, aged thirteen years, was admitted to the Johns Hopkins Hospital, August 4, 1898. He complained of headache and pain in the legs; he had never been sick before. On July 30th he commenced to have headache, which was still present at the time of his admission. On July 31st he had a slight nose-bleed, while during two days, July 30th and 31st, he had had pains in the shins. He had a good appetite, the bowels moved regularly every day, and he had not had chills, nausea, nor vomiting.

The physical examination showed the patient to be a small boy of dull appearance, with eyelids somewhat swollen. His heart and lungs were negative. There was no abdominal tenderness; no rose spots. The spleen was not palpable; tongue thickly coated; considerable gurgling in the right iliac fossa. There was neither swelling nor tenderness in the muscles of the arms or legs; the throat was negative. The temperature range was between 98 and 100.2° F. during the first four days and the case was at first regarded as a mild febricula of doubtful origin, possibly typhoid fever.

On August 10th an examination of a specimen of freshly taken blood was made, and one was at once struck by the large number of eosinophiles present, these cells with their large, highly refractive granulations being unmistakable. A differential count made on dried specimens, stained with the Ehrlich stain, showed that 48 per cent. of all the white blood-cells were eosinophiles, and this *at once* led to a diagnosis of trichinosis being made.

Further questioning of the patient elicited the fact that about one week previous to his admission to the hospital he had had pain in the calf-muscles of both legs, never very great, while there had never been any pain in the other muscles of the body. The legs had never been swollen, but the eyelids had become slightly puffy four days before his entrance. He had not had abdominal pain or diarrhea. On being questioned as to whether he had recently partaken of hog-meat of any kind he remembered having eaten of raw sausage on July 10th, and of cooked ham on July 23d.

On August 11th a small piece of muscle was removed from the left gastrocnemius muscle under cocain anesthesia; this was hardened in formalin, and subsequent microscopic examination showed the same changes as described in full in the preceding three cases (*loc.cit.* p. 328, *et seq.*); the presence of young, non-encapsulated trichinæ in some of the muscle-fibers, about them a fresh, active myositis with many eosinophiles among the cells present, and various degenerate changes in the muscle-fibers themselves, marked swelling and proliferation of the nuclei, longitudinal and transverse splitting of the fibers, etc. The patient's temperature varied between 96.2° and 99.5° F. from the fourth to the twelfth day of his stay, after the twelfth day being practically normal. The urine was negative throughout and the blood did not give the Widal reaction.

[1] *Journal of Experimental Medicine*, vol. iii, No. 3, pp. 315-347.

The patient was discharged from the hospital on August 22d, feeling perfectly well. During his stay in the hospital his blood showed a leucocytosis of 18,100, while upon each of the two occasions on which a differential count of the leucocytes was made, it was found that 48 per cent. were eosinophiles. As in the other cases reported, the nucleus of the eosinophiles was polymorphous, *i.e.*, identical in form with the nucleus of the neutrophiles.

As I thought it would be of considerable interest to determine how long the condition of eosinophilia lasted after the disappearance of all other symptoms of the disease, the patient was persuaded to return on various occasions within the next three months to have his blood examined. Although the number of leucocytes per cubic millimeter diminished rapidly and was practically normal after the last part of August, nevertheless, the decrease in the percentage of eosinophiles was very gradual, and even on November 20th, the date of the last count, more than three months after the complete disappearance of all other symptoms, a slight eosinophilic increase was still present, the normal percentage of eosinophiles being from 1 to 3 per cent. Elsewhere [1] I have shown in the third case reported by me that the blood was normal both as regards number of leucocytes per cubic millimeter and percentage of the various forms five months after the complete cessation of all other symptoms.

Where the eosinophiles come from, in trichinosis, is still undecided, but a study of the blood and muscle in the four cases leads one to the conclusion that they are probably derived from the polymorphonuclear neutrophiles, those cells normally constituting from 65 to 80 per cent. of all the white cells of the blood, and that this transition takes place in the affected muscles. This is supported by the inverse relationship which exists between the eosinophiles and the neutrophiles in the four cases, by the identical character of the nuclei of both forms, *i.e.*, they are both polymorphous and that what are apparently transitional forms between the two were found in the affected portions of the muscle. Thus the addition of this case makes four cases in all in which this association between trichinosis and a very high grade of eosinophilia was present; in the first case, the eosinophiles reached 68.2 per cent. of all the white blood-cells; in the second 42.8 per cent., in the third 49 per cent., and in the fourth 48 per cent., while the total number of leucocytes per cubic millimeter reached 35,000 in the first case, 13,000 in the second, 17,000 in the third, and 18,000 in the fourth.

Just as this article is being brought to a conclusion I learn that a fifth case has just been diagnosed by an eosinophilia in the neighborhood of 50 per cent., with the subsequent verification of this diagnosis by the removal of a small bit of muscle and the finding of the actively motile parasites therein.

Of the four cases I have reported, in only one, the first, was there anything in the clinical history to make one even suspect that the case was one of trichinosis, and it was only by means of the remarkable eosinophilia present, so easily made out by merely glancing at a fresh specimen of the blood under the microscope, that the diagnosis was made. In fact, the second and fourth cases were regarded as probable cases of typhoid and the third as estivo-autumnal malaria before the blood examination was made.

Of course in a few other conditions an eosinophilia is noted in the blood, notably in bronchial asthma during the paroxysm and in splenomyelogenous leucemia, but the eosinophilia in these conditions is of not so high a grade and moreover, the diagnosis is easily reached by means of other signs and symptoms. But in trichinosis, except in the most marked cases or in the epidemic form, a diagnosis is impossible without a blood examination, and in conclusion I would like once more to suggest the great advisability of making the examination in febrile cases of doubtful origin and in cases with indefinite intestinal or muscular symptoms. This examination will require but a few moments and by the demonstration of a marked eosinophilia it may clear up a case now and then which otherwise would go down to posterity as another of that great class of cases, the undiagnosed.

[1] *Boston Med. and Surg. Journ.*, September 1, 1898.

SPECIAL ARTICLE.

THE GARRISONING OF OUR TROPICAL POSSESSIONS.

THE METEOROLOGIC AND TELLURIC CONDITIONS OF CUBA AND PUERTO RICO.

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No. 2.

INASMUCH as both Cuba and Puerto Rico lie south of the Tropic of Cancer their climates are naturally considerably warmer and also less subject to extreme variations than that of our own country and latitude. Cuba, which with her adjacent islands has an area almost exactly equal to that of the State of Pennsylvania, lies some ninety odd miles south of the Florida peninsula and the Bahamas, and separates the current which sweeps strongly and westwardly along its northern coast to meet the Gulf Stream from the warm waters of the Caribbean Sea that wash its southern shores. Long and narrow in shape, with rather low mountain ranges forming the main axis, and in the situation described, one could almost certainly predicate the meteorologic conditions of the island without further information. It will be well to mention, however, that although it has a length through the center of about 730 miles, it has an average width of only 80 miles; that the mountain ranges attain their greatest elevation and have their highest peaks in the southeastern portion of the island, and that the rivers which mainly trend either to the north or south, are numerous and, for the most, short and not navigable for extended distances.

Puerto Rico lies more than 500 miles to the eastward and somewhat south of Cuba, and is much smaller than the latter, being only 108 miles long and 37 broad. It also

extends east and west and has a range of low mountains parallel to and somewhat south of the longitudinal axis. The highest peak (3600 feet) is, however, in the northeastern portion of the island. It is evident that the rivers, flowing as they do either to the north or south, cannot be of any great length or size.

Situated as they are, the climate of these islands, like that of the other West Indies, will obviously be of a tropical nature, especially at the sea level; but, as elsewhere, altitude will have its modifying effect. Thus, the early Spanish discoverers made a distinction as to localities, classifying them as the Tierra Calientes (hot lands), Tierra Templada (temperate lands) and the Tierra Fria (cold lands). Along the coast, both north and south, the temperature averages between 70° and 74° F. in the winter months and 82° or 83° F. in summer, the average for the whole year in Havana being about 77° F. Inland and in the hill country at elevations above 300 or 400 feet, the temperature occasionally falls to the freezing point and frosts are not uncommon. The Tierra Templada lie at elevations between 2000 and 4000 feet, and have a climate similar to that of our Southern States, and more temperate than that of the lower levels. The Tierra Fria are practically above the level of 4000 feet, are necessarily limited in extent and have an average temperature and climate warmer than their title would indicate, for it is said that snow is never seen in Cuba. For the western part of this island, cool north winds, coming from the United States and crossing the Gulf Stream, are not uncommon in the dry or winter season.

In the coastal regions, and especially in Eastern Cuba, the annual rainfall is heavy, sometimes aggregating 70 inches. However, the "Encyclopædia Britannica" is authority for the statement that the average for seven consecutive years in Havana was only 40.5 inches, or but little more than the annual average for Philadelphia. More than two-thirds of the rain falls in the wet season, between the first of May and the first of November, and from July until the end of the season thunder showers are of almost daily occurrence. It is said that if the heavy rains are late in coming the heat becomes more oppressive and the conditions favoring epidemic diseases are intensified. The thunder showers usually occur in the late afternoon. After a day of overpowering heat and, probably, of excessive humidity, there is a heavy downpour of rain, accompanied by sharp and vivid thunder and lightning. This may last for two hours or more, when it quickly ceases and evaporation from the overheated and surcharged earth begins and a heavy fog or mist is formed which envelops everything and doubtless carries in it myriads of the miasmatic organisms that infest the soil.

It was partially on account of such conditions that our troops had such a disastrous experience in the recent Santiago campaign. The daily drenchings and subsequent cooling due to the rapid evaporation not only made the men, who had been exposed to the intense and exhausting noon-day heat, extremely uncomfortable throughout the night, but quickly produced the intense chills that so depressed the soldier's constitution and vitality that he became an easy prey to the pathogenic organisms carried by the all-prevading fog, or that most certainly infected the surface- and ground-water that he ignorantly or recklessly drank to quench his thirst in the burning heat of the following day. Small wonder is it that so many succumbed to the malarias, the *calenturas*, and the yellow fever. Rather may we be surprised that any escaped the infection of these maladies. Only the knowledge and wisest application of sanitary laws and measures will serve to protect those who are exposed to such conditions before they are thoroughly acclimated.

Puerto Rico is considered to be cooler and pleasanter in climate than Cuba, but the difference is only one of degree and both islands have their superabundance of rain in the wet season, and especially in their eastern provinces. Here the high and cooler peaks and elevations of these localities stand like sentinels to intercept the warm trade winds, overladen with moisture and continually sweeping in from the Atlantic, and the heavy rainfalls and the marked electrical displays are but the natural physical results of these conditions.

Hurricanes are in reality not so frequent in these islands as is commonly believed since several years sometimes intervene between them. When they do occur it is most likely to be in August, September, or October, when the other atmospheric disturbances are greatest and most common.

The soil of the two islands and their geologic features are quite similar in character. The former is mainly calcareous in nature, with underlying granite and other igneous rocks and, in western Cuba, outcroppings of serpentine and syenitic formations. A marked red or brown tinge shows the presence of iron through most of eastern Cuba, but this disappears toward the center and gives place further westward to the lighter and yellowish color of the prevalent sandstone and gypsum formations.

On account of the warm and equable temperature, and the large amount of moisture, vegetation is luxuriant throughout the greater part of both islands; humus is, therefore, abundant, and the fertility of the soil has long been almost proverbial. Tobacco, sugar-cane, tropical fruits, and trees all thrive in the coastal regions and lower levels, while at moderate altitudes coffee has been and doubtless will be in the future even more profitably cultivated. The opportunity for the successful growth of the various crops of the temperate zone here presents itself, and no one can now estimate Cuba's value alone as a nation's garden.

But from the very nature of things these conditions which are so favorable to commercial agriculture, also foster the almost unlimited development of the causes of many infectious maladies. With the constant heat, moisture, lime and other salts, and the abundance of decaying organic matter, almost any kind of "germs" would have no difficulty in multiplying luxuriantly in the soil, and with the numerous streams and the dismal fogs to carry them thence, the frequent occurrence of the respective diseases is only to be expected. Add to this the depression and increased susceptibility to sickness produced in the unacclimated by excessive and unaccustomed

heat, unsuitable clothing, insufficient or improper food, and bodily fatigue, and nothing but inevitable illness can be expected. However, there is no evidence that Cuba was originally the habitat of any of these pathogenic organisms, excepting possibly those of a malarial nature which are to be found in all tropical countries. In fact, until comparatively recently the interior and especially the elevated portions of the island were remarkably free from any epidemic or endemic diseases, and though no one today can say that any particular locality has not been infected by the sick of the troops of both sides which have been passing and repassing during the last three years, it is entirely possible and probable that with the enforcement of prompt and proper sanitary measures these favored localities can be speedily restored to their pristine salubrity. On the other hand, the conditions are far different along the coast line and especially in the cities where large numbers of people have been neglecting the laws of hygiene for years and where everything that could favor the spread of disease from person to person has had full power and sway.

In the forests and jungles, where the sunlight is veiled from the earth's surface by the riot of vegetation, where the atmospheric humidity is almost if not quite at the saturation-point and where the soil is soaked and dank from the daily showers, the organisms of malaria, of strange fevers, and of the *calenturas*, have the choicest of breeding-places; and whether one believes or not in the ascensional powers of evaporation and that the dense fogs can lift these organisms bodily from the surface of the soil, no one doubts that both the air and the ground-water of such places are full of peril and poison to him who partakes of them. And of what house, hut, or hovel can we be certain that it has not been infected by some yellow-fever or smallpox patient who may have occupied it but for a night or a day? Danger may lurk in all of these, and the warning should be positive and firm that our garrisoning forces may not make use of these isolated or collected shelters that they may find apparently ready to their service throughout the country districts. It has already been shown that the marines at Guantanamo burned the rude and probably infected buildings which they found there, observed sanitary precautions and escaped disease almost absolutely throughout their ten-weeks' stay; while the neighboring army only a few miles distant, under similar climatic conditions, but neglecting hygiene and using like structures for shelter and, after the battles, for hospitals, quickly and extensively developed malaria, yellow fever, and other ills. Making every allowance for the emergencies and difficulties with which the larger body of troops was confronted, and for the impossibility of satisfactorily enforcing rules and regulations theoretically perfect and proper at such a time and under such circumstances, the deductions to be drawn from the above comparison must be plain to all. It is probable that in such crises disaster will always come upon men ignorant of the laws of hygiene, no matter how stringent the rules from headquarters intended to govern their physical welfare; but if they are individually educated and informed as to these matters and know the reason and importance of the respective precautions, then each man becomes a sanitary guard for himself and for all his comrades. In other words, why should not the Army have the same drill and instruction in hygiene and its laws as the Navy and Marine Service, and why might there not be equally good results from such teaching?

Referring finally to the larger Cuban cities where the laws and methods of modern hygiene have been almost unknown and certainly unpractised for many years, the risks of disease are probably even greater than in the forests. Accumulations of filth that have been growing for decades, polluted water-supplies, ignorance of disinfection and its power for good, and a total disregard of the dangers to which one sick with an infectious malady may subject others have worked together to render many of the larger towns and cities veritable hotbeds of disease. The consular reports for last month show a death-rate in Havana for the week ending December 1st equivalent to an annual ratio of 109.8 per thousand, or five times that of Philadelphia or New York, and that that of the City of Cienfuegos is even worse. In these cities fully half the deaths were from infectious diseases more or less readily preventable, and the same official reports show that the municipal and physical conditions are such as to warrant and demand the most vigorous sanitary action *immediately*. Probably the same stories can be told of every other large community in the island, and again making every allowance for the deprivations and demoralization of the recent war we can but admit that disease and pestilence could scarcely have had more freedom and license for destruction in modern times than in these cities under Spanish rule.

But fortunately the conditions are not hopeless and a great opportunity presents itself for a convincing demonstration of the powers of modern sanitation and preventive medicine. We all regret the loss of Colonel Waring, and all appreciate the possibilities that lay in his conduct of affairs in Havana, had he been spared for the work. But in Santiago, where the conditions were as bad, if not worse than those mentioned, General (but also Doctor) Wood has created reforms and made improvements in a few short weeks that seem almost incredible to even those of the strongest faith. The following tribute to his work is worthy of quotation here in full:

"General Wood, who was given military command of the City of Santiago, has already demonstrated in the most brilliant way what good administration can do for a region like Cuba that has suffered for centuries from hideous misgovernment. Our governor found the city indescribably filthy. He promptly opened the clogged drains; organized a street-cleaning service; enforced compulsory rules for the removal of garbage and domestic waste; established a disinfection-corps in connection with an efficient medical service; put the hospitals into good working condition; cut the death-rate down seventy-five per cent.; averted a yellow-fever epidemic that was considered inevitable; restored, repaired, and greatly improved the water-supply; organized an efficient general police system, discarding the hateful Spanish uniforms;

cleaned up the water-front and devised plans for the dredging and permanent sanitation of the harbor; established a strictly regulated relief-service for the benefit of the thousands of half-starved people who returned to the city from the places to which they had withdrawn in the period of hostilities; restored the administration of justice under his own immediate direction; opened the schools and took the children off the streets, and in a variety of other ways brought order out of confusion.

"General Wood has set the standard at Santiago, and what has been done there must not only be continued and completed, but must, either by General Wood himself or someone else, be accomplished at Havana and at every other important town in the islands formerly administered by Spain that may come under the responsibility of the Government of the United States.

"It is extremely fortunate that General Wood, who is a distinguished physician as he is also a renowned soldier, has shown the War Department exactly what an American military government of conquered Spanish territory can accomplish for the welfare of the innocent inhabitants."[1]

Let us hope and urge that like reforms and work be carried on throughout all the island by American energy and skill; but let us also insist that in the doing of this work and in all the duties required of our troops during our time of occupation and administration every precaution be taken that will preserve their health and lives and advance their welfare. Some sacrifices must be made, but much of the labor can be and should be done by those who are acclimated, and it is only fair to insist that, so far as possible, those whose duty is that of a garrison should have every sanitary precaution taken for them.

But little remains to be said of the nature and history of the exciting causes of the diseases which have been referred to in this article. The excellent articles on "The Cuban Fever Plasmodium," by Dr. Watkins, and on the "Comparative Morphology of Malarial Plasmodia," by Dr. Ewing, published in the MEDICAL NEWS for December 17, 1898, give far better and fuller information of these pathogenic organisms than our space here permits. To these we can undoubtedly ascribe the malarias and paludal fevers that have been mentioned. All are familiar with the causes of enteric fever, dysentery, tuberculosis, smallpox, etc., that so largely add to the high mortality rates of the Cuban cities, and their further discussion is thus unnecessary.

Of the cause of yellow fever alone a few remarks may be new or instructive to some. Despite the careful work of such investigators as Woodward, Sternberg, Freire, and others, the actual cause of this disease has not yet been positively identified, but there is nevertheless every reason for believing it to be a specific living organism. It develops and multiples within the human system, but probably undergoes some intermediate changes after leaving one body before it is able to communicate the disease to another. It is rarely carried by water but may be transported by the atmosphere for short distances, but its progress is interrupted by such slight barriers as walls, streams of water, and even a traveled highway. The usual transmission, however, is by fomites, such as hair, clothing, etc., by which it may be carried long distances. It succumbs to heat, if intense, and to freezing, though a frost, while checking its development and the consequent spread of the disease, may only render it dormant and it may cause new trouble upon the advent of warmer weather. Warmth and moisture are most favorable for its growth and yellow-fever epidemics.

As stated, it is not thought to be indigenous to Cuba or to the rest of the West Indies, and it is said that the disease has practically only been endemic in these islands during the last century. Some attribute its transportation thither to negro slaves brought from the west coast of Africa where it has been prevalent for a very long time. That it can be annihilated and a locality freed from its ravages is practically proven by our experience with cities in this country, such as New Orleans or Memphis, and especially by the example of Jamaica, which at one time was as unhealthful and lacking in sanitation as Cuba, but is now an island remarkable for its salubrity.

The death-rate from this disease in Cuban cities at present may appear remarkably low, but it must be remembered that most of the native population are non-susceptible to it, either through having once had it or by gradual accommodation, and that any others who are still susceptible are comparatively few in number in the various populations. Consequently, we may look for a number of cases and of deaths from this disease, if not an actual epidemic, among our unacclimated soldiers sent to garrison these cities, unless the greatest foresight and care for their protection be taken in every way. How this may be done will be pointed out in a subsequent paper.

[1] From "The Progress of the World," in the *American Monthly Review of Reviews*, for November.

MEDICAL PROGRESS.

Acute Inflammation of the Conjunctiva.—MORAX AND PETIT (*Rev. de Therapeut.*, November 15, 1898) have conducted a series of examinations and experiments during a period of four years in order to determine the nature of inflammations of the conjunctiva. They find that there are three forms of conjunctivitis which are common. One of these, an acute contagious trouble, is due to the bacillus of Weeks, and gives rise to various symptoms more or less grave. The simple cases may give rise in other individuals to grave ones. This conjunctivitis may be accompanied by phlyctenæ or by corneal or sclerotic complications. The best treatment is that by nitrate of silver. The diplobacillus causes a subacute conjunctivitis. This affection is also a contagious one. The authors cite many cases in support of this view. Sulphate of zinc is the best remedy. The third form of conjunctivitis is the gonorrheal. These three kinds of bacteria have the power of multiplying on the surface of the mucous membrane, and of inflaming it. Other bacteria (pneumococci and certain streptococci), though normally present upon mucous membrane without setting up inflammation, acquire this property under certain circum-

stances. Still other bacteria, such as the bacilli of diphtheria, staphylococci, and certain of the streptococci, can only multiply in mucous membrane after some accident has given them an entrance.

VALENCÓN says that these three varieties of inflammation of the conjunctiva are easily diagnosticated microscopically. He has found protargol most efficacious in the treatment of the first two forms. That due to the bacillus of Weeks is completely healed in five days by solutions of protargol, and the gonorrheal conjunctivitis is much improved and ultimately healed by the same remedy in five per cent. solution, dropped into the eyes several times a day. Conjunctivitis due to the diplococcus is at first apparently benefited by protargol, just as it is by nitrate of silver, but the improvement is only limited, and sulphate of zinc has to be resorted to to complete the cure. Protargol has all the antiseptic power of nitrate of silver and argentamin, and is less irritating and painful. It is therefore less serviceable for granular conjunctivitis than argentamin.

Gonorrheal Stricture of the Rectum.—BERNDT (*Centralblatt. f. Chir.*, December 3, 1898) makes a report upon eighteen strictures of the rectum from gonorrhea (four of them in males), and concludes that they arise independently of ulcers, from the penetration into the deeper parts of the gonorrheal inflammation. Five of the patients had a previous inflammation of Bartholin's gland; six of them had syphilis. In all of the patients except one, the stricture was within 1½ inches of the anus. The gonorrheal process extended, however, a variable distance above this. Hemorrhage, if it occurred, came from ulcers above the stricture. Three patients were discharged unimproved; five were benefited by incision and treatment with bougies; while upon six a radical operation was performed. One of these died upon the second day, of peritonitis, and the others recovered with more or less control of defecation. The operation which ended fatally was done without a preliminary colotomy, and since that time Mikulicz insists on the preliminary establishment of a fecal fistula in all cases.

THERAPEUTIC NOTES.

Treatment of Acne Simplex.—MCKINNEY (*Maryland Med. Journ.*, November 19, 1898) advocates at least three hot baths each week taken at night followed by cold sponging, and a cold sponge bath every morning for patients who are troubled with acne. A light nutritious diet, plenty of exercise, and bowels kept regular, with cascara if necessary, are points not to be forgotten in any case. Tonics, cod-liver oil, phosphates, etc., may be required by the particular patient. The remedy par excellence for acne simplex is calcium sulphid. The proper dose is ½ of a grain, twice daily, and this dose should be steadily increased until four such tablets are taken each day. If the taste is objected to, it may be disguised by sugar coating, or the drug may be given in capsules. In case of excessive gastric irritation, it may be desirable to begin treatment with $\frac{1}{10}$ or $\frac{1}{4}$ of a grain. In the acute stages of the trouble, arsenic does no good, and may do actual harm. At each visit it is well for the physician to spend a little time in gently squeezing out the larger comedones, and curetting the smaller ones with the comedone extractor. The pustules should be lanced at the base in a slanting direction, and the point of the needle or lancet, swung around in the abscess cavity, to break up its contents. If this be done, so that the pus can be squeezed out without disturbing the overlying crust, the resultant scar will be scarcely noticeable. An antiseptic is needed and can best be applied in the form of a soap containing sulphur or bichlorid of mercury, with which the face can be washed at night, so that the patient may avoid going into the air until the irritation caused by the antiseptic has passed away. If there is too much irritation from the use of the soap or other preparation, any of the semi-solid creams may be rubbed into the skin several times a day. Following are other good antiseptic preparations:

℞ Sulphur precip. . . . . ʒi
Ether . . . . . ℥ss
Alcohol . . . . . ℥iiiss.

M. Sig. External use.

The lotion should at first be applied only at night, but after the skin becomes accustomed to it, it may be used advantageously several times a day. The sulphur often causes considerable irritation when first applied, but rarely so much as to cause its discontinuance.

If an ointment is desired, it may prescribed as follows:

℞ Sulphur precip. . . . . ʒi
Ung. aquæ rosæ, Lanolin } aa . . . ℥ss.

M. Sig. External use.

Another good combination is:

℞ Potassii sulphid, Zinci sulphat. } aa . . . . ʒi
Aquæ . . . . q. s. ad. ℥iv.

M. Sig. External use.

If the skin remains discolored after the papules and pustules have subsided, an ointment of tar and sulphur, or ichthyol and sulphur should be used, rubbing it into the skin for a half-hour each night. The use of very strong stimulants, as naphthol, resorcin, caustic potash, etc., is to be avoided, as their effect is often very injurious to the skin.

The Micro-organisms of Cystitis.—ALBARRAN, HALLE, AND LEGRAIN (*Gaz. heb. de Med. et de Chir.*, November 3, 1898) say that there is no specific micro-organism of cystitis. A great variety of microbes are found in the inflamed bladder. The bacterium coli is by far the most often found. It was present in 131 out of 304 cases examined by them. In 89 of these cases it was the only germ found. They found the pyogenic staphylococci in 70 cases of this same series. These microbes are the only ones which occur at all frequently. In the cystitis which follows gonorrhea, the gonococci are often at fault. This view is contrary to that previously held, which regarded such a cystitis as a secondary infection with other microbes.

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THE MEDICAL NEWS FOR 1899.

WE have already announced for the New Year a series of special articles on "The Garrisoning of Our Tropical Possessions," which will treat the important subjects of hygiene and sanitation not only for the troops but the inhabitants, and will keep all of our readers informed as to the practical progress that is being made in the solution of these important problems in our new possessions. As tropical medicine now takes on increased National interest for us we shall carefully follow from month to month the Mexican and South American medical societies and journals for advances in this line with the hope too of thus making Pan-American medicine more of a living issue now that our interests in medicine as well as other things give us so much more in common.

In general our special articles during the year will be made a feature and will consist of up-to-date reviews of subjects of practical interest to the general practitioner. Our original articles will maintain the same high standard as ever and in accordance with our established custom nothing will be admitted to the columns for any reason except its actual scientific worth and its practical value and interest to the busy medical man. Our abstracts from medical journals, our accounts of medical and therapeutic progress and of the proceedings of foreign medical societies will be made with the conscientious, painstaking care that has characterized them in the past and with even more completeness. As far as is consonant with the conveyance of a proper comprehension of the subject everything will be put as concisely as possible. We realize how little time the general practitioner has to give even to his medical periodicals so that we shall try to select for abstract and comment only what seems of special practical interest in current medical literature and so put it that its import can be unfailingly grasped and with as little expenditure of time as possible. Our motto is *non multa sed multum*.

FIRST AID ON RAILWAYS.

A RECENT accident on a French railway brings this subject again into public prominence, and in a very practical way. Surgeons were procured, it seems without much delay, but considerable time passed before proper surgical appliances, sterile dressings, bandages, antiseptic dusting-powders, solutions, and the like could be secured for the temporary dressing of the wounds. The result of the outcry on the part of the public because of the delay in the treatment of patients necessitated by the absence of these indispensable articles led to the issuing of an order by the Minister for Public Works requiring all railway-trains carrying passengers to be provided with a certain number of the requisites for prompt, surgical, first aid to the injured.

Dr. Estes, the well-known chief-surgeon of the Lehigh Valley Railroad, in a letter published in another column, commenting on a recent editorial utterance in the MEDICAL NEWS on the "First Aid on Railways," enforces by statistics from the service of that road how much good has been done in the last ten years by the carrying of "first-aid packets" on all trains. The subject is one of great practical interest for the traveling public now so large in America. It deserves serious attention and discussion and should lead to the adoption of similar and even more complete precautions by every railroad in the United States. Only medical men can understand all the significance of such preparations for inevitable accidents in the amount of suffering

that will be relieved and the number of lives that will be saved. All the weight of medical opinion, then, should be wielded to make railroad companies see that their own interests and those of the traveling public in this matter are one.

THE ROTUNDA HOSPITAL OF DUBLIN.

THE clinical report of the Dublin Rotunda Hospital for the year ending November 1, 1897, is of somewhat greater interest than usual on account of the description of the gynecological work of the year. The obstetric portion of the report contains details of the external and internal work of the hospital. It appears that among 2007 deliveries in the external division, there were but five deaths, none of them from sepsis. These fatalities were due, one each, to pneumonia, placenta previa, inversion of the uterus, pulmonary embolus, and cardiac disease respectively. There is an interesting narration of a case of rupture of the uterus, the patient recovering without operation. From the description it is evident that rupture of the puerperal uterus can take place without any of the alarming symptoms which are regarded as classical in the text-books and a diagnosis of which is reached only when, for some reason, the fingers are passed into the uterus.

There were two deaths in the internal maternity service out of 1448 cases, one from rupture of the uterus, the other from septic endometritis. This gives a total mortality for the year of 0.002, a remarkably low rate. Still the aseptic and antiseptic methods insisted upon in both divisions of the hospital's work and the fact that outside patients requiring operation are frequently removed to the hospital, contribute to this excellent showing.

Krauge's method of inducing premature labor—by the introduction of bougies, was tried three times, twice successfully. In the third case, no other method was attempted, but a bipolar version was performed. Inasmuch as this patient suffered from cardiac disease, the nature of which, however, is not stated, opinion may well differ as to the advisability of not attempting other means of inducing artificial labor before resorting to general anesthesia. We may well call into question, too, the recommendation that for accidental hemorrhages, in the face of severe bleeding and the absence of labor pains, the most reliable treatment is vaginal plugging and a tight abdominal binder. The good results obtained by this method at the Rotunda Hospital merely show that in some hands some procedures are satisfactory. The only case of eclampsia during the year was successfully treated by the hypodermatic injection of morphin, the patient delivering herself of a living child three days after admission. Ophthalmia neonatorum was rarely seen, the prophylactic instillation of a 1-per-cent. solution of nitrate of silver being still practised at the hospital.

Turning to the gynecological report, it is to be noted that in the clinical operating-room, the students, the wash-stands, and the sterilizers are separated from the operating-room proper by a partition of plate glass. Interesting data are given as to the preparation of materials, operators, and patients, which differ in no essential particulars from those in vogue in other clinics. Catgut is prepared by alcohol sterilization, the alcohol being slowly brought to the boiling-point while contained in a brass cylinder. Abdominal cases are drained only when there is a large area denuded of peritoneum or from which there is general oozing. A Mikulicz bag is then used for the purpose. Chloroform and ether are the anesthetics preferred, the former only being employed in obstetric work.

THE MIDWIFE QUESTION ONCE MORE.

EVERY one admits that something should be done to lesson the evils necessarily attendant on the midwife as we know her at present in New York City. The need of reform in the matter has been evident for many years. More than a quarter of a century ago, while Dr. Jacobi was president of the New York County Medical Society, the subject was warmly debated. Sporadically, ever since, attention has been called to the evils attendant upon the present system, and measures for reforming it have been suggested. Notwithstanding all this, we are practically in the same position to-day in the matter as we were twenty-five years ago. Let us hope that out of the insistent agitation of the last year or two some practical enduring reform will be evolved. The profession has long enough afforded an undignified spectacle to the world of agreement as to the existence of abuse, and utter disagreement as to the means of correction. We owe it to ourselves that this state of affairs shall continue no longer, and

whether able to accomplish our purpose with legislators or not, that we shall be at least agreed as to what is to be looked for in the matter of reform.

Existing abuses call for reform, but how this reform is to be brought about is where the division of opinion arises. The widwife is a relic of the time not so very long ago when obstetrics did not properly constitute a branch of medicine, and almost any woman who had had children herself was supposed to be capable of taking care of a labor case. It was not until the end of the last century that obstetric lectures in a medical course, in English at least, were delivered for the first time. The advance in obstetric science since then has been most remarkable, and it has all been in the direction of more and more skilled attendance at labor cases. Labor is normally a physiological process, and the doctrine of non-interference is to-day the keynote of obstetric practice. But in the exciting moments that occur in even a normal labor case it requires a thorough grounding in *principle* rather than any mere training by *precept* to keep the attendant in patient, truly scientific inaction.

The mortality of great obstetric clinics has been reduced to a small fraction of one per cent., but it is because obstetrics has become a science as well as an art. The condition of every organ is known as far as possible before labor, in order to provide for possible complications. The condition of heart and kidneys, especially, is looked to, and the often fatal surprises from these organs during parturition guarded against. The highest principles of modern bacteriology constitute the every-day working rule of the clinic. The care of the child has become a special science in itself, and pediatrics has greatly reduced the mortality of new-born children. It is evident that no half-educated, merely trained assistant can ever be expected to master the important details of these sciences, yet they must be practically applied in even normal labor cases; mistakes are serious and may be fatal.

We know that we have sketched an ideal, an ideal after which even doctors do not strive with satisfactory results; but it is the ideal that must be held up unless we would retrograde in the midst of the too faulty real. To such an ideal, obstetric science will sometimes raise its educated practitioners but it can never hope to do so with the class of people that wish to become midwives. To license midwives even after training them would be to put off for long years the application of the benefits of scientific obstetrics to that important class of the community, the many-childrened poor. It would be distinctly a mistake.

There remains the other question, What shall we do just now? Midwives, now practising, have certain vested rights; these, of course, must be respected. They sadly need regulation, however, so that Dr. Tuthill's proposed bill (see proceedings of the New York Medical League, page 29) would seem to be the practical solution of the question. Register midwives already in practice for two years but admit no new ones to registration, and so allow the midwife as a New York institution to disappear. Against this it will be argued that the midwife fills a want for the poor foreign population of the city. The poor we shall have always with us, but we do not look for the continued influx of foreigners into New York in the future that came in the past; while the rising generation born here become, such is the wonderful assimilative power of our institutions, more American than the Americans themselves.

For the poor who are able to pay but little there is the young doctor, so frequent at present, so ready to do such work for a modest fee, and liable, if we read the signs of the times aright, to be still less exacting in the future. For the poor who are unable to pay, organized charity, the signs of which are in the air all around us, will, in the next twenty years, have supplied abundant opportunities to secure scientific obstetric attendance. For the menial services that midwives now furnish in addition to heir duties proper as *sages-femmes*, district nurses on an endowed foundation will have been organized. In these provisions, not in an undignified compromise with half-educated and often characterless midwives, lies the solution of the question of obstetric attendance for the poor of great cities.

We cannot then see any reason for perpetuating the present midwife institution by ill-advised legislation that smacks too much of opportunism and sacrifices the future of obstetric science for the poor, for the questionable benefits of the legal regulation of present day evils. We do see the necessity for present regulation and future abolition of

the midwife, hence, we approve of Dr. Tuthill's proposed legislation, and call on the profession to give it their heartiest cooperation. While thus convinced ourselves, we are perfectly willing to have the other side of the question discussed in our columns, if done so briefly and pointedly.

CHICAGO'S CONTRIBUTION TO ANTITOXIN STATISTICS.

WE cannot refrain from calling particular attention to the diphtheria antitoxin statistics of the Health Department of Chicago, which we publish in another column this week. As may be seen from them, 1713 lives have been saved to the city of Chicago by the antitoxin treatment during the past twenty-six months, while the death-rate from diphtheria during November last, notwithstanding that ten per cent. of the cases were severe enough to require intubation, was only three per cent. Chicago's death-rate from diphtheria before the introduction of the antitoxin treatment was over thirty-five per cent.

If carefully collated statistics ever mean anything, surely here is something to make the most obstinate opponent of antitoxin at least hesitate before he endeavors longer to oppose what so many, after actual practical experience, are coming to regard as the greatest therapeutic blessing ever conferred on mankind. There is only one thing in the history of medicine to compare it with, that is Jenner's vaccination. There were invincible opponents of vaccination, and there are even now those who insist on not crediting it. We know in just what class the anti-vaccinationists belong, and it has now come to a pass in medical affairs that the persistent opponents of diphtheria antitoxin must be classed with them.

We sincerely compliment the Health Department of the City of Chicago on its brilliant results. We feel sure if the methods of the antitoxin departments of those European cities (there are but three, we believe) whose statistics are supposed to still throw doubt on the therapeutic value of antitoxin, were regulated as carefully as Chicago's seem to be, their results would be of a different nature. We cannot close without a word of praise for the succinct forceful way in which the statistics are brought out in order to make them most effective for the public; we commend this method to the health departments of other cities because of the value it possesses in the cause of antitoxin as an educational factor for the masses as well as the profession.

WELL-DIRECTED MUNIFICENCE.

WE reported last week the fact that Lord Iveagh, one of the Guinness family of Dublin, had given £250,000 ($1,250,000) to the Jenner Society of London for the promotion of scientific research tending to the prevention of disease. We cannot well imagine where a liberal generosity seeking an outlet for its philanthropic benevolence in something that would confer the greatest lasting good upon mankind, could find a more worthy object than this. The prevention of disease and its consequent suffering represents the acme of an enlightened human charity. It is to-day without doubt the best thing for the intending charitable to encourage and foster by their gifts and endowments.

Despite the vast wealth of our country and the number of extremely wealthy men it contains, gifts of this kind have not been as frequent as might have been expected. It is very probable that our wealthy classes do not as yet fully understand how much there lies behind the veil in medicine and how much might be done in this country, with the genius for research and discovery that our people have, to solve the great problems at present so insistent in practical and scientific medicine. When the realization of the great field for practical philanthropy that is lying open in this matter shall have come to our liberal wealthy classes—it is the beginning of a new year and we may be pardoned if the spirit of prophecy asserts itself—an era in medicine in America will begin that will eclipse anything medical history records.

Meantime it would seem to be the duty of members of the profession to make clear the possibilities there are for well-doing in this line to men who may have it in their power, by properly directed pecuniary aid, to anticipate the day when in medicine, as in everything else, the course of Empire shall take its way westward.

ECHOES AND NEWS.

A Monument to Charcot.—A monument to Charcot has been erected in front of the Salpétrière. M. Leygues, Minister of Public Instruction, presided at the ceremony of unveiling.

Deaths of Soldiers at Manila.—The weekly death-list of the United States troops in the Philippines is as follows: Typhoid fever 2, smallpox 2, accident by drowning 1, by gunshot wound 1, ulcer of the stomach 1.

An Unassailable Position.—"No human pen or tongue taught me the science contained in this book, 'Science and Health,' and neither tongue nor pen can ever overthrow it."—*Mrs. Eddy*, the "mother" of the Christian Science Church.

"Medical Progress."—Messrs. Lea Brothers & Company have just announced for publication in March, 1899, the first volume of a new annual, *Medical Progress*, which will be issued in four handsome octavo, cloth-bound, and richly illustrated volumes of about 400 pages each. The several volumes will appear at intervals of three months.

Dr. Hamilton's Fatal Illness.—At the time of writing the obituary of Dr. John B. Hamilton, which appeared in the MEDICAL NEWS last week, it was impossible to secure definite information regarding the cause of his death. His final illness proved to be typhoid fever, and the immediate cause of death was perforation of the intestines.

A Seven-hundred-pound Patient.—Mrs. Hannah McKenzie, who is fifty-eight years old and who is said to weigh 700 pounds, was taken to Harlem Hospital. It required the services of nine men to carry her from the fourth floor of the house in which she lived down to the hospital ambulance. She has had a reputation as the fat lady in a dime museum.

Homeopathic Medical College Election.—At the annual meeting of the New York Homeopathic Medical College and Hospital of Sixtieth street and Eastern Boulevard, Roswell P. Flower was elected president; Giles E. Taintor, vice-president; George W. Clasty, secretary, and Richard M. Hoe, treasurer. A number of committeemen were also elected.

Professor Roentgen Declines.—It is now announced authoritatively that Professor Röntgen has refused to accept the call to the University of Leipzig to succeed Professor Wiederman, who will retire at the end of this semester. Professor Röntgen prefers to retain his present position, that of Professor of Physical Sciences at the University of Würzburg.

Her Sleep That of Death.—A young lady at Hebron, Ind., retired in apparently good health on the evening of Tuesday, the 20th ult. Next morning her relatives were unable to awaken her. Her physician pronounced her to be in a trance and expressed the belief she would soon awaken. On Sunday, five days later, it was discovered that she had been dead for some time.

A "Skirt-Slasher."—An incident worthy the attention of Lombroso occurred recently in a department-store of New York, which illustrates an odd phase of mental pathology. A man was arrested for surreptitiously cutting to pieces in a crowded store the valuable silk skirt worn by a customer. This action is akin to that of spitting tobacco juice or throwing ink upon skirts worn by women, which are more frequently committed than "skirt-slashing."

Christian Science Did Not Save.—The faith in Christian Science of the family of Judge J. W. Eller of Omaha, Neb., is being thoroughly tested. A gasoline stove exploded and burned several members of the family. Two "healers" were called in who prayed at length. When the victims were being told they were not in pain the flesh was dropping from their bodies. Mrs. Eller died, but the other sufferers declared that if they could not be saved through prayer it was not worth while to call for physicians.

Scientists at Columbia.—Hundreds of well-known scientists from all over the country were in this city to attend the meetings of the numerous societies held at Columbia University during the holidays. Seven societies connected with the American Society of Naturalists held their sessions either in the halls of the university or at the College of Physicians and Surgeons; geologists, mathematicians, and chemists also attended. There were anthropological, morphological, physiological, anatomical, and psycological sections.

Pelopathy.—A German clergyman has devised a system of faith-healing which has the merit of illustrating the utmost length to which human credulity will go. He tells those seeking for health that as they were originally made of dust the place to look for health is in mud. He orders them to roll in mud and to refrain as long as possible from rubbing off the coating thus acquired. "And do they do it? Of course they do—scores of them. And if the pelopathist can keep his face straight for a few months he is going to be a rich man."—*New York Times.*

Drunkenness and Insanity Increase.—The Bellevue Hospital authorities have been forced to notice during the holiday season an unusual increase in the number of alcoholic and insane patients. Both wards of this hospital are now crowded. An unusual number of boys have been found intoxicated. There are forty-three patients in the insane pavilion; fourteen persons supposedly insane were admitted in one day. As such a crowded condition of these wards has never been known before, there must be some other reason than the presence of the holiday season.

Smallpox on an Incoming Steamer.—On the arrival of the Hamburg-American-Line Steamship "Pretoria," at the New York quarantine last week, the health-officer learned that one of the passengers, a child three years old, had been ill with symptoms of smallpox. She had been kept isolated. The child and its mother and three other members of the family were sent to the Reception Hospital; nine steerage passengers who had occupied the same compartment were sent to Hoffman Island for observation; all the other steerage passengers were vaccinated; the vessel was disinfected and was then permitted to dock at Hoboken.

Death of Isaac Lewis Peet, LL.D.—Dr. Peet, the Emeritus Principal of the New York Institution for the Instruction of the Deaf and Dumb, devoted most of the 72 years of his life to the amelioration of the condition of those suffering from these infirmities. He was born at the American School for the Deaf at Hartford, Conn., where his father was an instructor. He occupied many positions and was a member of a number of societies and committees, in all of which he labored for the deaf and dumb. He was a prolific writer on all subjects relating to the deaf, their status and education. In 1886 his inaugural address as President of the Medico-Legal Society of New York City on "The Psychical Status and Criminal Responsibility of the Uneducated Deaf and Dumb," attracted much attention among teachers of the deaf, physicians, and lawyers.

Inert Vaccine Lymph in Chicago.—During the year 1897, according to the official report of the Department of Health of Chicago, 126,800 tubes of glycerinated lymph were distributed by the city to its public vaccinators. With those, 82,804 successful results were obtained, *i. e.*, an average of 1½ tubes were required for each success. During the first eleven months of the present year 75,000 tubes in round numbers have had to be used for a little more than 25,000 successful results, an average of nearly three tubes for each success. During the last four months to November inclusive 45,000 tubes have been used for only about 12,000 successes, an average of nearly 4 tubes for each successful vaccination or revaccination. The comment of the Health Department is: "Without further detail at this time it is evident from these gross figures that the producers of glycerinated vaccine have yet much to learn before they can be depended on to furnish a uniformly potent as well as pure lymph."

The New York Hospital and the State Board of Charities.—There is a controversy between the Society of the New York Hospital and the State Board of Charities. The former denies the latter's right to inspect the Hospital. The State Board takes the position that they are merely fulfilling a mandatory provision of the amended Constitution of the State of New York defining the duties of the Board. The Constitution says: "The Legislature shall provide for the State Board of Charities which shall *visit and inspect* all . . . institutions, whether State, county, or municipal, incorporated or not incorporated, which are of a charitable . . . eleemosynary, correctional, or reformatory character, excepting only such institutions, etc." The only exceptions are those institutions made subject to the visitation of the Lunacy and Prison Commissions. Upon this authority the Board expect to act unless the Hospital contends successfully that under its royal charter from George III. it is independent of this provision of the constitution.

Diphtheria Antitoxin in Chicago.—During the month of November, 1898, according to the reports of the Department of Public Health of Chicago, 168 cases of diphtheria were reported to the department and examined bacteriologically. Of these 98 were found to be true diphtheria caused by the Klebs-Löffler bacillus and were treated with antitoxin. Four patients remaining over from the preceding month were also under treatment. Of the 102 patients 97 are reported as having recovered, 2 remain under treatment, and 3 have died. A mortality, therefore, is shown of 3 per cent. in completed cases. Ten of the patients treated required intubation so that the diphtheria during the month was by no means of a mild form. Two of the 3 deaths were in intubation cases and all 3 of the fatal cases were first seen by the inspectors of the Department of Health later than the fourth day. This is certainly a remarkable showing for antitoxin and statistics so kept will soon furnish us with an answer to even the last of the obstinate doubters of serum-therapy. To this report for the month is appended the following details of the results obtained in Chicago since the original introduction of the antitoxin treatment of diphtheria by the Department of Health on October 5, 1895: During the succeeding twenty-six months to date the physicians of the department have examined 5739 cases of reported diphtheria. Of these 3956 were found to be true diphtheria and all but 134 (treated by family doctors) were treated by the department. Out of the 3822 patients thus treated 3763 recovered and 259 died, a mortality of 6.7 per cent. Before the introduction of antitoxin the mortality of diphtheria in Chicago was 35 per cent. *"At this rate there would have been 1337 deaths among the number actually attacked instead 259"*—a clear gain of *1100 lives* in a space of scarcely more than two years to say nothing of the amount of suffering of the patients and worry on the part of parents and friends saved by this latest addition to therapeutics. But that is not all. Where these children were there were also 3633 other children exposed to the infection and these were immunized, being given the preventive doses of antitoxin. Only 30 out of this number were subsequently attacked by the disease; they all had light attacks and promptly recovered. Of the 3600 exposed, in all probability at least one-half would have contracted the disease but for the immunization with antitoxin and, of this number, if the mortality of pre-antitoxin days obtained, there would have been 635 deaths or a total of 1972 deaths from diphtheria during the last 2 years and 2 months. In 26 months then there has been a saving to the city of Chicago, thanks to diphtheria antitoxin, of 1713 lives.

SPECIAL ARTICLE.

THE REPORT OF THE LOOMIS SANATORIUM FOR THE YEAR ENDING NOVEMBER 1, 1898.

THROUGH the courtesy of Dr. Stubbert, the Physician in Charge, we have received the annual report of the Loomis Sanatorium for Consumptives. In view of the recent attempt in England at some concerted action for the prevention of this disease, under the patronage of the Prince of Wales and Sir Wm. Broadbent, the present report has a particularly timely interest.

The primary objection to all such compilations is that they are invariably presented in a statistical form. Very few men are able to handle statistics; a little knowledge of the art, as of learning, is a dangerous thing. As was said some time ago in reviewing a statistical effort of a life-insurance medical director on the subject of "Phthisis:" "They don't even lie truthfully," and while we have not the slightest doubt that much good has been accomplished by the faithful and scientific work done at this particular sanatorium, we are compelled to question the conclusions which are drawn in the report before us.

Before proceeding to an analysis of this report we must take issue with the author for his use of the word "cured." It is an accepted fact that according to our present light it is practicably impossible to decide when the word "cured" should be applied to consumptives, especially in the case of females.

It is a common experience to meet patients who, after several years' residence in Colorado, have returned to the East, apparently cured, but who, after a short residence in New York, Philadelphia, Baltimore, or other Eastern cities, have again developed the disease and who have either died or been compelled to return to a high altitude.

This report gives the results of a year's work in the sanatorium, from which it seems that 204 patients had been treated during the year ending November 1, 1898, 78 of whom were there on November 1, 1897. The patients are divided into two classes: (1) Those who remained three months or less. (2) Those who remained longer. Of the total 204 the number described as "cured" is 28; of this number 10 are put down in class 1 and 18 in class 2, the latter being those who had been there over three months. In this connection the director says: "It is interesting to note that of those patients discharged after a residence of three months or less six per cent. were "cured," while among those who remained longer than three months eleven per cent. were cured. Here we must take issue with Dr. Stubbert, for while these cases had undoubtedly so improved that there was no longer any bacilli in the sputa or apparent lesion in their lungs and while they may have seemed in excellent health, the time was too short between the departure of any one of the twenty-eight and the making of this report to justify even the most hopeful in describing them as "cured." Again we must ask the director why he makes no distinction between female and male patients, a very important point it seems to us, for it is well known that phthisis is far more fatal in the female than the male, owing particularly to the fact that tendency to the tuberculosis is inherited through the mother and secondly to the more or less confined life of the woman, which tends to develop the disease. And this latter influence especially holds after her dismissal from a sanatorium even as "cured." We are, therefore, surprised that Dr. Stubbert, in making up his report, makes no distinction between male and female patients.

Of the 204 patients in the sanatorium 67 were "discharged improved;" this is a very unsatisfactory statement and of very questionable application. We have in mind, for example, the case of a "Rough Rider" who on August the 19th had tubercular trouble at the apex of the left lung and bacilli in his sputum; after being mustered out September 16th he increased many pounds in weight, his cough stopped, and the bacilli disappeared from his sputum. Two months later (indeed up to December 1st he was in splendid health) he broke down and was sent West with all the symptoms of tubercular lung trouble. We could give many such instances in our practice and it is for this reason that we are inclined to criticise any report treating of this disease in which patients are described as "discharged improved," or "with the disease arrested." These criticisms apply both to class 1 and class 2 in this report, where the patients are described as "cured," "disease arrested," or "improved." We do not wish to seem hypercritical for we know great good has been done by the Loomis Sanatorium in combating this dread disease, we desire only to emphasize the fact that great care should be exercised before drawing final conclusions from combinations of what are ordinarily classed as statistics.

The remainder of this report is more useful and interesting. Dr. Stubbert states that there is far more improvement among the patients during the winter than the summer months and his experience has shown that his patients "brave with impunity the cold northwest winds" and that he has seen eighty patients gather at meals from their cottages day in and day out "without the least detrimental effects." In this connection he states that "the results obtained during the three cold seasons at this sanatorium seem to tend to revolutionize the popularly accepted ideas of the "injurious effects of wind and stormy weather in *incipient* cases of tuberculosis. We do not understand why he speaks of "the popularly accepted ideas," for even more severe conditions exist at Davos, which is to-day and has been for ten years, the place of all others to which cases, not only of incipient, but of well-developed phthisis have been sent by French, English, and Swiss experts on tuberculosis.

We cordially agree with Dr. Stubbert's conclusions that the patients should be encouraged to take constant exercise and be in the fresh air (under ordinary conditions) as long and as frequently as possible.

The balance of the report is taken up with the auxiliary treatment of special cases with various remedies. What interests us more especially is the experience with the antitubercular serum. He shows that twenty-seven per cent. of those treated lost the tubercle bacillus, although he does not state that they have been followed after their dismissal from the institution. It is but fair, however, to quote his statement: "I have lately examined between fifteen and twenty cases treated with serum and have not found one that redeveloped the disease; all have been enabled to remain in their homes and at their work and have been away from the sanatorium for periods varying from six months to a year and a half."

Of the effects of the United States Government serum of De Schweinitz he says: "I believe it to be the duty of the profession to continue the clinical administration along this line, since the three apparent effects noted from

the use of this serum have been: (1) "Reduction of temperature." (2) "Decrease of the bacilli." (3) "Possible immunity conferred upon patients after returning to their homes."

With reference to his use of antistreptococcic serum he says that it was naturally used in the hope that he could thereby do away with the streptococcus so that he would then be left to deal with the tubercular affection alone. With this end in view he employed in ten patients the Pasteur serum, selecting, of course, only such patients as showed the presence of the streptococci. Judging from the ten cases given it caused the disappearance of the streptococci for a time at least, and though its action was slow it apparently should leave the way open during that time for a more successful use of the De Schweinitz serum.

The report finally deals with forty cases of tubercular laryngitis; of which Dr. Stubbert says that "43 per cent. of the *ulcerated* cases have been discharged cured." This is certainly a very gratifying result; but a long experience with tubercular laryngitis in this country, in England, Germany, in St. Petersburg and Moscow compels us to believe that the word "cured" should not have been used.

The report shows that a number of other drugs were used without specially good results; among others the new South-American "Kalagua." It would seem from his experience that this has certain merits but we question whether the results claimed for it by the "Medical National Society of Columbia" are justified.

Finally Dr. Stubbert's experience with what he describes as the "pneumochemic" treatment corresponds entirely with our own experience with the pneumatic cabinet. It is of use only where there is bronchorrhea and excessive cough.

In any event this report is exceedingly interesting. The methods and practice at the Loomis Sanatorium mark a distinct advance in the treatment of tubercular disease and every encouragement should be given to Dr. Stubbert to continue his further scientific efforts toward the prevention and cure of this most fatal malady.

CORRESPONDENCE.

FIRST AID ON RAILWAYS.

To the Editor of the MEDICAL NEWS.

DEAR SIR:—The interesting and valuable editorial which appeared in the December 3d issue of your journal should have the hearty thanks and support of all intelligent and earnest men who are connected with railway management, in either the surgical or purely executive departments.

There is no question that the Belgian and English railway systems are far ahead of ours in the matter of systematic methods for rendering first aid on their lines, and in this country the West and South have better systems, as a rule, than the roads in the East and North. Indeed, I know of one large system which enters New York City which has not even a surgeon connected with its lines. If public opinion were properly educated in this matter this could not be possible.

Railway surgeons have hitherto been regarded as rather an inferior class by the erudite members of our profession, and their efforts and accomplishments in the matter of hygiene and preparations for meeting medical and surgical emergencies along the lines of railways have either been unrecognized by the leading medical journals or have been allowed to go absolutely unsupported. It is a matter for mutual congratulation, therefore, that the MEDICAL NEWS has taken up this most important matter, and I trust it will continue to advocate the necessity of proper preparation for meeting surgical emergencies along the lines of railways until public opinion shall force every system to have a thoroughly equipped surgical department and adequate arrangements for giving modern and efficient first aid to the injured. I feel that I am entitled to speak emphatically and strongly concerning this matter as I have some strong data to support the proposition that the NEWS so well expresses, namely, "Every dictate of humanity as well as financial interest demands its enforcement."

In 1886, acting as chief surgeon for the Lehigh Valley Railway I introduced on the road a system of "accident cases" to be used for injured persons. The road at that time had its line well supplied with local surgeons but there was absolutely no provision for supplying simple aseptic dressings and means for controlling hemorrhage. In many cases the lack of these I found resulted in loss of life. Surgeons summoned hurriedly rarely carried with them the necessary appliances for controlling hemorrhage and very rarely had properly prepared materials for temporarily dressing an injury so that it might be properly protected and run no risk of further infection while the injured person was transported to a hospital or to his home. The soiled handkerchiefs and soiled "waste" from the locomotive, which the employees were accustomed to use in their efforts at first dressing simply made rapid recoveries after injuries impossible. These accident chests were intended to furnish simple appliances and aseptic dressings, with some antiseptic substances, to be used by the surgeon; they were put up in a easily portable and compact form and enclosed in a tin case.

A printed list of the contents of the tin case and a few simple directions for meeting some emergencies was pasted inside the lid of each chest. I also gave some personal instruction to station-masters on first aid to the injured. These cases were at first located at the stations along the line and with each wreck-train. It was found that they were so important a factor in caring for injured people that now not only the stations and wreck-trains have them but every passenger-train conductor must carry one in his "kit," and the cabooses of the freight trains and special coaches are also supplied with them.

Space will not permit me to go exhaustively into the results of the use of these cases—it will suffice to say that my statistics show a saving of a little more than *sixty per cent. of lives* since the use of these cases as compared with the old régime, and time of disability reduced one-

half. The saving of suffering no one can properly calculate; it must, however, be very great indeed.

Very truly yours,

W. L. Estes, M.D.

ST. LUKE'S HOSPITAL,
SO. BETHLEHEM, PA., December 31, 1898.

[The editor heartily commends this plan, as outlined by Dr. Estes, and regrets that he is unable, on account of its length, to publish the list of articles contained in the accident chest, as well as the "Rules for the Treatment of the Injured Immediately after the Accident." If Dr. Estes has a supply of these slips on hand he doubtless will be pleased to furnish copies to those who are particularly interested in this very important subject.]

SCHLEICH'S MIXTURE FOR GENERAL ANESTHESIA CONDEMNED.

To the Editor of the MEDICAL NEWS.

DEAR SIR:—In the issue of the MEDICAL NEWS for November 12, 1898, I published an article, entitled "Clinical Observations in Regard to General Anesthesia by the Schleich Mixtures," which I summed up by saying that the Schleich mixtures are easily taken; that they may be used in all cases in which general anesthesia is not contraindicated; that anesthesia can be induced in a short time and kept up with small amounts of the fluid; that there is little accumulation of mucus, little vomiting, and hardly any cyanosis; that there is no bad effect on the kidneys; that the heart is not much influenced by it, although somewhat weakened; but that there is *some danger in regard to respiration;* and finally, that it affects the patients much less than ether or chloroform. I, therefore, recommended this new anesthetic for general use.

I take it to be my duty to inform the readers of the MEDICAL NEWS that I have been compelled to change my opinion in regard to the safety of these mixtures. In the article I stated that the real danger with Schleich's mixtures lies in their influence on the respiration, and I reported three cases in which there had been bad arrest of breathing, but in each case there was some complication which might be regarded as a mitigating circumstance. But now within twelve days I have had two similar occurrences in comparatively healthy women. One was a woman twenty-three years of age, in whom I extirpated Bartholin's glands on account of a fistulous tract remaining after an abscess. The abdominal muscles remained stiff, and when the anesthetist gave her more, she stopped breathing. She was immediately treated according to Sylvester's method, administration of oxygen, and pulling on the tongue. She recovered soon, but I then ordered ether to be given instead of Schleich's mixture.

The other was a forty-six-year-old woman, whom I operated on for fibroma uteri. All her other organs were healthy, but she became blue in the face and stopped breathing. In this case I saw again the excellent effect of the new method of revival invented by a Frenchman (Arcachon?). It consists simply in moving the tongue forward and backward. This interrupted pulling forward has appeared to me to have a more immediate effect in reviving the asphyxiated patient than any other remedy I am acquainted with, and it can, of course, easily be combined with other measures.

Thus having had five cases of dangerous respiration among little more than a hundred patients, to] whom Schleich's mixture was given, I do not feel warranted in using it again in spite of all its excellent qualities, and I hereby beg to revoke the endorsement I have given it verbally and in print.

Yours truly,

HENRY J. GARRIGUES, M.D.

NEW YORK, December 24, 1898.

THE USE OF QUININ IN MALARIA.

To the Editor of the MEDICAL NEWS.

DEAR SIR:—In the MEDICAL NEWS for December 17th, in your special article on "The Present Status of Opinion upon the Use of Quinin in Malaria," I find this statement: "Here and there some one with but small experience of malaria, or perhaps none, has expressed agreement with Koch's opinion. The voice of our own Southern medical men, of the English medical men in India, and of the medical men of Brazil and Italy, have been as a unit against Koch." Is not that statement too strong? The idea is not new; it is not Koch's.

Nearly all my professional life has been passed in a highly malarious country, and among the physicians there, who are not men of "small experience of malaria," the belief is quite common that quinin *does* cause hemoglobinuria. That statement of the writer should be somewhat modified. Again, "Another convincing consideration is that even in the midst of the genuine malarial hemoglobinuria the only remedy that can be depended on is quinin." Is that statement correct? Men who write books and most of the articles for medical journals live in cities where relatively few cases of malarial hemoglobinuria occur, and these scarcely of the worst type. They usually recommend quinin—but theoretically. Dr. N. S. Davis wrote on this subject, evidently though not from experience: "For accomplishing the two first objects large doses of quinin, opium, and astringents have been frequently used but with very little success." ("Practice of Medicine," page 203.) Then he quotes Dr. F. C. Fohs of Alabama, and Dr. G. B. Malone of Arkansas in support of a treatment in which quinin is not used. Drs. Fohs and Malone were evidently not men "with but small experience of malaria."

Where I had considerable experience with the disease, in the Arkansas River bottoms, the idea prevailed, accepted from the researches of Laveran, that the plasmodium malariæ was in the red blood-corpuscles, and when the plasmodium destroyed its host, it resulted, at the same time, in the destruction of the plasmodium itself, and if the patient could eliminate the disintegrated blood-corpuscles and plasmodium a cure would follow. All the persons I personally knew to die of the disease died of suppression of urine consequent upon a nephritis. Can one relieve a suppression of urine with quinin, given in any size dose or in any manner? Cases of hematuria, I grant you, have been cured with quinin, but hematuria is not

hemoglobinuria. That quinin may cause hemoglobinuria is possible; that it does, in these cases, is not proven, and not very probable. Personally, I do not believe that it does, but, like others, I do not know. Let Koch adduce his proof. In the meantime a proper spirit of inquiry is more conducive to the growth of medical knowledge than is dogmatism based upon our present imperfect knowledge of the disease. Very truly yours,

W. B. DEFFENBAUGH, M.D.

820 FRANCIS STREET,
ST. JOSEPH, MO., December 24, 1898.

INFIRMARY FOR STUDENTS AT YALE UNIVERSITY.

To the Editor of the MEDICAL NEWS.

DEAR SIR:—When, in your issue of December 24th, you assert to give "Honor to whom honor is due" in the matter of an infirmary for sick students in connection with a university, and through your correspondent, Dr. Hoag of Indianapolis, assign the priority to Cornell as against Harvard, I am constrained to call your (and his) attention to the fact that the "Yale Infirmary" on Prospect Street, this city, has been open and in successful operation since December, 1892.

The funds to build the Infirmary were contributed almost entirely by ladies, the first considerable amount being raised by a public performance at the Hyperian Theater in this city of the Greek play "Antigone," in which the performers were all ladies of New Haven. The affair proved a great success, both artistically and financially, more than $2000 being realized for the fund, and the impulse thus given aroused enthusiasm in distant cities, and the wives of loyal Yalensian graduates, the mothers *in esse* and *in futuro*, interested themselves to raise additional funds, so that in a little more than a year a building costing with its equipment nearly $40,000 was finished and ready for occupancy.

The first patient was received on December 16, 1892. In the following year the property was formally turned over to and accepted by the corporation of the University, and the public announcement thereof made in the report of President Dwight for that year. The building accommodates comfortably about fifteen students, and there has been an average attendance since its opening of eight. It has been the object of much favorable criticism, especially by Harvard men. President Eliot and others, notably Drs. Clarence J. Blake, Henry P. Walcott, and George W. Fitz, have interested themselves to visit it, and there has been much correspondence with regard to its workings. The statement in your issue of December 10th, that the Harvard infirmary (yet to be built) "is the first erected at any of the large universities," certainly did not emanate from a Harvard man!

The Yale Infirmary comes from no single contribution or family, however praiseworthy such a memorial may be, but, like its magnificent gymnasium, it is the evidence of the unabating love and loyalty of its Alumni and their friends. Respectfully yours,

"C."

NEW HAVEN, CONN., December 26, 1898.

[If any university in the country antedates Yale in this work let it now speak or ——.—ED.]

OUR PHILADELPHIA LETTER.

[From Our Special Correspondent]

A NEW WATER-SUPPLY SUGGESTED FOR PHILADELPHIA—HOSPITAL BEQUEST—PERSONAL NOTES—OBITUARY—THE CITY'S HEALTH FOR 1898—HEALTH STATISTICS.

PHILADELPHIA, January 3, 1899.

THE most sensible solution of the city's water problem yet presented is to be found in a communication from one of our Councilmen to Director of Public Works, Thompson. The writer suggests that the city lease or buy land surrounding some of the lakes and streams in Monroe County and that by means of an aqueduct the water be brought to the city without the necessity of filtration. Land can be purchased very cheaply in this region and the topography of the country seems peculiarly suited to the creation of large water-sheds, surpassing in fact the natural fitness of New York's supply.

This water-way is in the Pocono Mountains, a region to which the State Board of Health has recently called attention as a health-resort, and the water of the mountains is famous, among those familiar with it, for its purity. A few years ago there were gathered together at one of the summer hotels in this region a number of men who earnestly discussed the feasibility of conveying this magnificent and apparently inexhaustible supply of water not to Philadelphia but to New York and other cities along the route. The streams are unused except for trout-fishing carried on by some associations and flowing down long, deep valleys and, being from 1000 to 1500 feet above tide-level, they offer a truly, simple and magnificent opportunity to relieve the city from our death-dealing Schuylkill water.

By the will of Paul Jagode, $5000 is left in trust for the benefit of Quicko Thomas, "a poor and pitiabel epileptic," and upon the latter's death the money is to revert to the German Hospital for the maintenance of a free bed.

Director Riter, of the Department of Public Safety, has appointed Dr. John D. Devereaux an assistant medical inspector; Dr. Francis T. Stewart has been appointed chief resident of the Pennsylvania Hospital to succeed Dr. J. C. Starbuck, Dr. E. H. Wiggins becoming resident in the former's place.

At a meeting of the Board of Trustees of the Philadelphia Polyclinic and College for Graduates in Medicine held December 20th, Dr. Francis R. Packard was elected Dean of the College Department: Dr. Edward Martin resigned the Chair of Genito-urinary Surgery and the Chair was abolished; Dr. George E. de Schweinitz resigned the Chair of Diseases of the Eye, the Chair was abolished and an Emeritus Chair was created to which he was elected as a mark of appreciation of his services rendered the institution.

Dr. John Lindsay, Secretary of the Philadelphia County Medical Society, died at Riverton, New Jersey, on De-

cember 23d, of pulmonary tuberculosis. He was a graduate of Jefferson Medical College and Assistant Demonstrator of Anatomy at that institution.

Dr. John Sheets, a graduate of the University of Pennsylvania, died last week, aged forty. After studying abroad he made diseases of the throat a speciality and came to this city eighteen years ago, being at the time of his death a member of the Philadelphia County Medical Society and of the Medical Club of Philadelphia.

With the advent of a new year a retrospect of the city's health during the past year may be of some interest for it has been remarkable in some ways. The total number of deaths reported for the year was 23,790, a ratio of 19.18 per 1000 of population; 5036 were of children under one year of age, 2962 of children between one and five years old and 5498 occurred in people over sixty years of age. Notwithstanding the fact of our having had quite a severe epidemic of enteric fever and the fact that many sick soldiers were brought to this city, the the ratio of deaths per 1000 of population is next to the lowest of any year during the past ten, 1897 being the year in which the ratio was 18.72 as against 19.18 for 1898.

As to the present health of the city, the outlook is not especially cheerful, the number of deaths for the past week having reached 725 which is an increase over the week before of 75 and an increase for a similar period for 1897 of 264. Influenza continues to be an important factor in the number, 68 deaths being ascribed as directly due to "La Grippe," an increase of 39 over the week before and of 65 over the week of December 17th, surely a conclusive proof of the existence on no small score of a true epidemic.

The total number of deaths occurring in Philadelphia for the week ending December 31st, as reported at the Health Office, was 725, of which number 176 occurred in children under five years of age. The total number of new cases of contagious diseases was 230, reported as follows: diphtheria, 73 cases with 30 deaths; scarlet fever, 32 cases with 2 deaths; typhoid fever, 125 cases with 21 deaths.

SOCIETY PROCEEDINGS.

THE NEW YORK MEDICAL LEAGUE.—MANHATTAN SECTION.

Stated Meeting, Held Friday, December 16, 1898.

SUBJECT of the evening,

MIDWIVES AND THEIR ILLEGAL PRACTICES.

W. A. PURRINGTON, ESQ., read a paper on

SOME LEGAL ASPECTS OF THE SUBJECT.

Inasmuch as labor is a physiologic process, midwives in following their profession do not strictly come under the law regulating the treatment of disease. There is no legal definition of obstetrics, and it would be extremely difficult to formulate a satisfactory one, so that the midwife's practice of obstetrics has been simply an acknowledged fact. Certain statutes assume the existence of midwives; certain cities and counties have licensed them. This is all the legal status they possess. As to the question of formal recognition by law and their regulation and registration, it is not an easy one. There are too many statutes on the statute-books already, and the enforcement of such regulatory laws is very unsatisfactory. It often gives opportunity for the practice of blackmail on the part of inspectors. Doubtless, if a law were desired one could be formulated to cover the ground, but appeal to legislation has been too frequent in such matters, and every other means for the relief of existing abuses should be tried first.

Owing to his unavoidable absence because of illness MR. ELBRIDGE T. GERRY'S paper,

MIDWIVES AS ILLEGAL PRACTITIONERS,

was read for him. He told of the efforts of the Society for the Prevention of Cruelty to Children to break up certain midwife institutions in which abortion was evidently practised. The directresses of these places had taken the precaution, in a number of instances, to have their institutions legally incorporated, their nearest relatives constituting the board of trustees. This has made it a little more difficult to proceed against them. The society would welcome amendments to the present laws that would bring such institutions more directly under legal supervision, for such regulation is badly needed.

DR. THEO. K. TUTHILL read a paper, entitled

WAYS AND MEANS OF DEALING WITH THE ILLEGAL PRACTICES OF MIDWIVES.

He considers that all are agreed that the midwife is an evil. The practical regulation of the question, however, is bound up with many knotty points not easy to unravel. Midwives at present practising have certain vested rights which must be respected. The only way out of the difficulty seems to be to bring present midwives under legal surveillance by requiring registration, but to refuse to register any who have not been in practice for at least two years. With the gradual disappearance of the present midwives, and no additions to their ranks, the difficult problem would in course of time settle itself. This is, of course, a compromise for the present, but it will decrease the evils of the midwife system as now existing, and will lead to their ultimate extinction. It is such a compromise as had to be made when the question of the legal regulation of the practice of medicine came up. The vested rights of those already in practice, though without diplomas, had to be respected.

Dr. Tuthill then read the draft of a bill for the regulation of the midwife problem along these lines. Some of its special features are: No midwife is to be allowed to report a still-birth. The death-certificate for such cases must come through regular medical channels, as for all other deaths. Midwives are not allowed to continue in attendance at abnormal cases without calling in a physician. Any labor protracted beyond eight hours is to be considered as abnormal. The performance of any internal manipulation by a midwife, or the use or possession of any obstetrical instruments by one, is to be con-

sidered a misdemeanor and punishable as such. As stated, of course, the main feature of the bill is that no midwife is to be registered who has not been in practice two years at the time the bill becomes a law, and no registrations are to be allowed for any reason thereafter, thus providing for the gradual disappearance of the midwife.

DR. GARRIGUES was unable to be present, but communicated by letter the views he would have expressed in the discussion. He considers that with the number of doctors in this country the midwife is superfluous. If there should be any question of womanly reluctance to a man's attendance in a given case, women physicians are now at hand. The system of midwives inevitably has been a source of serious evils. They are criminal in many cases, known to be abortionists, a blot on our civilization. They are quacks, and under the circumstances it is scarcely possible to keep them from practising quackery. The delivery of a woman in our day is bound up with too much scientific medicine for us to hope to be able to train midwives properly, considering the class of women who wish to enter the calling. There is not alone the actual delivery, but the medical condition of the woman before labor, manipulations requiring skill and a knowledge of the importance of surgical bacteriology during labor, besides the highest principles of pediatrics during that first trying month of a child's existence. There is no excuse in poverty or modesty for the midwife in our day, for doctors and doctresses can be obtained. Let us, then, get rid of this crying evil.

DR. J. S. PETERSON thought that the midwives of the present day know as much as many of the doctors of thirty years ago, many of whom had had but six-months' medical teaching.

DR. GEORGE T. HARRISON related some characteristic anecdotes illustrating the ignorance of the midwife of physiology and anatomy. On one occasion, called in to a labor by a midwife, he delivered a still-born child. He soon saw that his efforts to resuscitate it would be vain, so he turned his attention to the mother. The midwife asked to be allowed to make a trial at restoring the child to life, and he gladly gave his permission. A few minutes later he noticed, to his surprise, that she was blowing with all her force into the umbilical cord. She told him her idea was to inflate the child's lungs, and so get it to breathe.

DR. M. B. FEENEY stated that in the down-town districts the midwives have considerable influence over the foreign voting population, and that any bill that seemed liable to make matters unpleasant for them would, he felt sure, be opposed by Assemblymen from certain districts, who would be won over by the political influence of these foreigners.

For Coryza.—

℞ Ext. hyoscyami . . . . . gr. iii
Potassii iodi } aa . . gr. xxx
Potassi bicarbonatis }
Ext. glycyrrhizæ . . . . gr. lxxx
Aq. anisi . . . . . ʒiv.

M. Sig. Two teaspoonful every four hours.

NEW YORK ACADEMY OF MEDICINE.—SECTION ON GENITO-URINARY DISEASES BEFORE THE ACADEMY.

Stated Meeting, Held Thursday, December 15, 1898.

DR. SAMUEL ALEXANDER read a paper, entitled

OBSERVATIONS UPON THE PATHOLOGICAL ANATOMY OF CHRONIC ENLARGEMENT OF THE PROSTATE, WITH SPECIAL REFERENCE TO THE CAUSES OF THE MUSCULAR INSUFFICIENCY OF THE BLADDER.

The paper was illustrated by a large number of lantern-slides in which were demonstrated various phases of prostatic enlargement macroscopically and microscopically. It was made clear that the original change in the hypertrophy of the prostate is an increase in the glandular elements, and that the fibrous condition so often seen in old cases is secondary and degenerative in character. The physiological purpose of the prostate as a sexual glandular organ seemed thus to be clearly brought out. It is not the enlargement alone causing mechanical obstruction that is the cause of the residual urine and other prostatic symptoms, but the fact that the enlargement by interferring with the insertion of the muscle of the trigone prevents it from properly performing its function of emptying the bladder. Hence it is, that at times even when there is no demonstrable enlargement of the prostate, when no prostatic tumor can be felt through the rectum and an ordinary catheter slips into the bladder easily, there may still be residual urine and other prostatic symptoms. In these cases there will usually be found an enlargement of accessory but distinct nodules of prostatic tissue situated just beneath the mucous membrane of the trigone. A number of perfect specimens of this condition, to which Dr. Alexander was one of the first to direct surgical attention, were shown. The symptoms occasioned by this condition have usually been attributed up to this time to a fibrous change in a normal-sized prostate.

The surgical treatment of this hitherto unstudied condition constitutes a very interesting problem for modern surgery, and one that no present method of surgical interference touches upon.

What the speaker especially insisted on is the manifold character of the pathologic changes (as may be seen from the series of microscopic sections and photographs of prostates) that underlie the condition known clinically under the simple name of hypertrophy of the prostate. Directly causative of the symptoms of the affection are especially the enlargement of accessory prostatic material existing in the trigone and the enlargement of the middle lobe, both of which interfere with the insertion of the muscle underlying the trigone, and so with its function of emptying the bladder.

DR. ABRAHAM JACOBI presented to the Library of the Academy, on behalf of Dr. Lothar Voss, formerly of New York but now of Germany, a copy of the original edition of Gasparo Aselli's work, "De Lactibus," a treatise on the lymph-vessels, and took occasion to say something of the book and its donor. The lymph-vessels had been seen by Hierophilus and others of the scientists of antiquity, but their purpose had been entirely misunder-

stood. They had been thought to be mainly carriers of air. Gasparo Aselli of Bologna, on July 23, 1623, during an anatomical demonstration, had first realized their true significance. He had found the valves in them so situated as to allow their contents to flow only in a different direction to that of the veins. His further study of the subject had led to the publication a year after his death of the book now presented to the Library of the Academy, and which was the first book ever printed that contained colored plates. Only two other copies of the first edition are known to exist, and only one of these is a perfect copy. This is in the library at Leipzig, while there is an imperfect copy at Breslau. Copies of the later editions are much less rare and valuable. The donor, Dr. Lothar Voss, was formerly a resident of New York and a member of the Academy. He returned to Germany and became a non-resident member of the Academy. That he did not lose his interest in it is proved by the present valuable gift. He is at present living in a little town in Westphalia from whence he sometimes makes pilgrimages to see the great surgical clinics and collect old books, for he is a great bibliophile. Through some error, either of the printer or of the Secretary of the Academy, Dr. Voss' name has been allowed to disappear from the list of Non-resident Fellows. Dr. Jacobi asked that every Fellow insert the name in his own list of the Members of the Academy, and that the secretary be instructed to see that no list of the Fellows be hereafter given out without Dr. Voss' name being included.

At the suggestion of the President, Dr. Janeway, a motion was carried to the effect that Dr. Jacobi should give expression to the vote of thanks which the Academy tendered to Dr. Voss for his valuable gift.

REVIEWS.

THE MEDICAL NEWS POCKET FORMULARY FOR 1899—Containing sixteen hundred prescriptions representing the latest and most approved methods of administering remedial agents. By E. QUIN THORNTON, M.D., Demonstrator of Therapeutics, Pharmacy, and Materia Medica in the Jefferson Medical College, Philadelphia. In one wallet-shaped volume, strongly bound in leather, with pocket and pencil. Price $1.50, *net*. Philadelphia and New York: Lea Brothers & Co., 1899.

NO more appropriate words of introduction to this handy volume can be made use of by the present reviewer than those of its author, who says in the preface: "That there is a broad and legitimate field of usefulness for works of this character is self-evident, for even the best-informed practitioner may at times overlook an appropriate drug, and the young physician will perform his duty better, both to his patient and himself, if he has at hand the collective experience of the profession. No man of independent thought will be hindered in his development by having the best information placed conveniently at command."

These sentiments meet with our hearty approbation, and the more so because in this instance the author has placed this best information of which he speaks before us in a form which could not be improved upon. Diseases are arranged alphabetically throughout the book, and under each head the prescriptions cover not only the acute conditions, but also those of a chronic nature, as well as the ordinary complications. All doses are stated in both the apothecaries' and metric system. The work has been well and thoroughly done, and all recent remedies and combinations which have been proved of undoubted value in practice find a place.

The book is of convenient size, is very attractively printed and bound, and should find a place on the table or in the pocket of every practitioner who prides himself on being abreast of the times.

CONTRIBUTIONS TO ORTHOPEDIC SURGERY. By A. SIDNEY ROBERTS, M.D., Late Surgeon to the Philadelphia Hospital; Orthopedic Surgeon to the Out-Patient Department in the University Hospital, Etc. Privately printed. Philadelphia: 1898.

THIS is a "memorial volume" to the late Dr. A. Sidney Roberts by Dr. James K. Young, who ardently eulogizes the deceased in his introductory biographical sketch. This collection of Roberts' writings embraces the more commonplace orthopedic topics – club-foot, spondylitis, knock-knee, bow-legs, flat-foot, chronic osteitis of the knee-joint, and spinal orthropathies. Each and every one of these is handled in a masterly manner, and the article on club-foot is, possibly, the most complete one extant. All of this work is very instructive because it presents unbiased and exhaustive considerations of the subjects treated. By the publication of this collection much has been rescued from obscurity.

THE GOSPEL ACCORDING TO DARWIN. By WOODS HUTCHINSON, A.M., M.D. Chicago: The Open Court Publishing Company, 1898.

IT is needless to say that Dr. Hutchinson's book is interesting. Any one who has read other of his writings, or has heard him talk, can well realize that he has attempted to find in modern science a basis and a satisfaction for certain of the tendencies in man that constitute natural religion apart from anything revealed. The attempt has sometimes brought him into outspoken opposition with religious dogma in its strictest sense. The style is not, however, in any sense controversial, and the material is handled in a way to make it eminently suggestive. Dogmatists will find it heretical, materialists will think it not progressive enough or at least over-sentimental, while pure scientists, *i.e.*, men who cultivate science heedless, if possible, of any relations it may have with the non-material, will perhaps resent the application of their scientific discoveries to an order of truth to which they are not related. Meantime, to ordinary medical readers it will prove without doubt a well spring of serious thought on the questions in which religion and science touch each other.

Some of the chapters, as that on "The Value of Pain," containing under subheadings the discussion of such interesting subjects as "Pain Necessary to Life and Progress," "Value of Pain in Disease," "Discomfort as a Factor in Progress," "Discomfort the Mother of Science," are especially suggestive to the thinking medical man.

The chapter of excursion into sociological subjects, "The Duty and Glory of Reproduction and Economics of Prostitution," is extremely timely now that these questions have come to occupy so much of sincere scientific medical attention. The subheads, "Ignorance of Our Sexual Functions Immoral," and "Evil Effects of Limiting Size of Families," shows the thoroughly conservative yet eminently reasonable position the author takes on certain important living issues. Prostitution is handled from some points of view that are new and striking, especially for medical men, and some of the lines of thought are developments of opinions expressed by Dr. Hutchinson in the MEDICAL NEWS during the course of the past year.

Among the striking, because to all seeming utterly paradoxical, chapters is the one on "The Beauty of Death," in which the discussion of "Death as a Factor in Progress," "Dependence of Life on Death," and the "Painlessness of Death," redeems the precious character of the beautiful twin brother of sleep from the aspersions so usually cast upon it.

On the whole, the book is well worth the reading. In addition to conveying a lot of interesting scientific information pleasantly it will suggest fruitful lines of thought more precious than any merely new ideas.

A MANUAL OF VENEREAL DISEASES. By JAMES R. HAYDEN, M.D., Chief of Clinic and Instructor in Genito-Urinary and Venereal Diseases, College of Physicians and Surgeons, New York; Professor of Genito-Urinary and Venereal Diseases in the Medical Department of the University of Vermont, Etc. New (2d.) edition, revised and enlarged. New York and Philadelphia: Lea Brothers & Co., 1898.

THE new edition of Hayden's manual has been carefully revised, especially in the discussion of gonorrhea and chancroid. The chapters on gonorrhea and its complications present the subject in a very practical way, at the same time being correct in all scientific details. We believe that a mistake was made in neglecting to insert a statement as to the decolorization of the gonococci in the Gram procedure as that now seems to be firmly fixed as a means for differentiating the organism. There have been numerous additions under the head of gonorrhea; seminal vesiculitis, urethral cystitis, and cystitis are discussed, and a good description is given of the symptomatology and treatment of gonorrheal ophthalmia and gonorrheal rheumatism. Conservative treatment of gonorrhea is advised.

In the chapters on strictures, short articles have been added on the extravasation of urine and the care of urethral instruments. The methods of performing external urethrotomy are given in some detail. The articles on chancroid and syphilis have been brought up to date, although there are no striking changes. It is unusual to find in a book of even larger dimensions so complete a summary of the manifold phases of syphilitic infection as is here given.

The new manual will, undoubtedly, meet as great a success as its predecessor, especially because of its practical spirit.

THERAPEUTIC HINTS.

For Migraine, when associated with gout or rheumatism, the following pill is recommended:

℞	Quininæ valerianatis		gr. xv
	Ext. colchici, Ext. digitalis	aa	gr. iv
	Ext. aconiti		gr. ii.

M. Ft. pil. No. X. Sig. One pill at night after dinner.—*Hirtz.*

A Diaphoretic in Nephritis, when uremia is imminent:

℞	Pilocarpinæ hydrochloratis		gr. ⅓
	Mucilag. acaciæ		ʒ iii.

M. Sig. Three to six tablespoonfuls a day.

Although the dose is small, the drug thus given will stimulate perspiration while causing no unpleasant symptoms.—*Lemoine.*

To Anesthetize the Membrana Tympani.—

℞	Ac. carbolici pur., Menthol, Cocain hydrochlorat.	aa	gr. xv.

M. Sig. External use.

BONAIN of Brest makes use of this mixture, which is a clear syrupy liquid, in the following manner: A small bit of absorbent cotton on a stylet is dipped in it and laid against the membrane, which is viewed through a speculum. A slight burning sensation is produced, but in two or three minutes the local anesthesia is complete, and an incision can be made painlessly. The mixture acts to some degree also as a caustic, as is evinced by a slight reddening of the membrane.

For Chronic Nephritis.—

℞	Lithii benzoat.		ʒ iiss
	Betol		gr. lxxx
	Sodii bicarb.		ʒ i.

M. Div. in chart No. XX. Sig. One powder two or three times a day between meals in cachets.

When the urine is diminished in quantity, dark in color, or possibly blood-stained, tannin should be prescribed as follows:

℞	Ac. tannici, Pulv. cinchonæ	aa	ʒ iiss.

M. Div. in Chart No. XX. Sig. One powder in a cachet twice a day at meal times.

This treatment is to be carried out for a considerable period. It is well to discontinue it during one week of each month.—*Lemoine.*

For Epilepsy.—

℞	Potassii iodi		ʒ i
	Potassii bromidi		ʒ ii
	Ammonii bromidi		ʒ iiss
	Potassii bicarbonatis		gr. xl
	Inf. calumbæ	q. s. ad.	℥ vi.

M. Sig. One teaspoonful before each meal and three teaspoonfuls at bedtime, in a little water.—*Brown-Séquard.*

GOUT

TONGALINE stands without a rival for the relief of gout and gouty rheumatism. The first dose of Tongaline greatly alleviates the pain, generally a brisk purgative should be given at the outset, the second or third doses subdue the pain, and marked general amelioration is observed. With a continuance of the remedy the inflammation and tumefaction begin to decrease, and, in a large proportion of cases, rapidly disappear.

The internal administration of Tongaline in any of its forms, as indicated, may be supplemented by the local application of Tongaline Liquid.

SCIATICA AND LUMBAGO

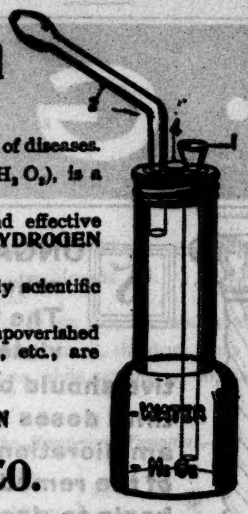
THESE diseases, although different in origin and nature, the one a neuralgic and the other a rheumatic affection, are generally associated. Hence, in the older ordinary treatment of sciatica and lumbago the element of pain was combated locally without regard to constitutional medication.

Tongaline besides being anti-neuralgic and anti-rheumatic, exerts a specific action on the excretory system, thus not only palliating the pain but thoroughly eliminating from the body the direct cause of the disease.

The internal administration of Tongaline in any of its forms, as indicated, may be supplemented by the local application of Tongaline Liquid.

Tongaline

Oxygen by Inhalation



OXYGEN is of definite and known value in the treatment of diseases.

OAKLAND HYDROGEN DIOXIDE, U.S.P. (formula H_2O_2), is a definite chemical containing a given amount of oxygen.

THE OAKLAND INHALING BOTTLE is a simple and effective vehicle for administering oxygen obtained from **OAKLAND HYDROGEN DIOXIDE.**

No complex reaction or principles involved: an absolutely scientific oxygen treatment at very low cost.

Diseases of the Throat, Lungs, Respiratory Tract, Impoverished Blood, Defective Assimilation, Dyspepsia, Melancholia, etc., etc., are directly benefited by this treatment.

FULL DESCRIPTIVE LITERATURE ON APPLICATION

THE OAKLAND CHEMICAL CO.

465 and 467 WEST BROADWAY, - - NEW YORK

Laxative Logic

To induce catharsis without the objectionable sequalæ common to a majority of laxatives, no remedy responds to the need of the physician with more satisfaction and celerity than SYRUP OF FIGS. As made by the California Fig Syrup Co. from the highest grade Alexandria Senna, SYRUP OF FIGS has achieved a potency and recognition as an agent of established therapeutic worth. There is no preparation that stimulates Nature so well in its effect. No other is better suited to the permanent relief of intestinal inactivity, a functional derangement directly responsible for the condition described as constipation. Its gentle effect upon the intestinal mucous membrane and the natural peristalsis which follows the administration of SYRUP OF FIGS gives to it a unique value as a laxative, and suggests its adaptability to women and children because of its agreeable taste and persuasive action. It is invaluable to persons who through infirmity or occupation are committed to a sedentary life. It is *simple*, *safe* and *reliable*, and possesses the particular merit that its use does not induce the cathartic-taking habit, and in all cases where a laxative is indicated it is a help and not a hindrance.

SPECIAL INVESTIGATION SO CHEERFULLY INVITED.

"Syrup of Figs" is never sold in bulk. It retails at fifty cents a bottle, and the name of "Syrup of Figs," as well as the name of the "California Fig Syrup Co.," is printed on the wrappers and labels of every bottle.

CALIFORNIA FIG SYRUP CO., SAN FRANCISCO; LOUISVILLE; NEW YORK.

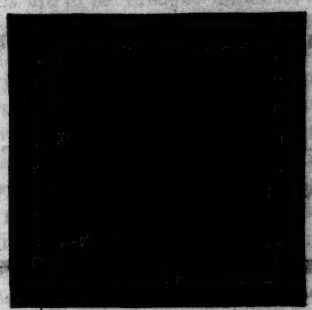
"The greatest therapeutic discovery of the age, and of the ages, is that where we cannot produce good blood we can introduce it."

What is Hæmatherapy?

A New Thing—and a New Name which, though literally translated (Blood Treatment), may not convey to every one a definite idea. It is a treatment which consists in opposing to a condition of disease the very power—good and sufficient Blood—that would naturally prevent it, that would still cure it spontaneously, and that actually does cure it spontaneously, wherever the blood-making work of the system is perfectly efficient; and therefore also *will* cure it, if a deficiency of the vital element be supplied from without, under proper medical treatment.

That Blood is such a power as here described, is an undisputed physiological fact. Its transmission from one animated organism to another, for the purpose of supplying a defect in the latter, is the substance of the Blood Treatment; and How to Do this, in different cases, is the form or description of the same. Blood may be taken from a healthy bullock (arterial blood—elaborated with due scientific skill); or it may be obtained in the well-attested living conserve known as bovinine, from any druggist; and may be introduced into the veins of the patient in either of four ways, that may be most suitable to the case: viz.: by the mouth and stomach; by injection, with one-third salt water, high up in the rectum; by hypodermical injection; or by topical application to any accessible lesion.

A Film of Bovinine: Showing the Blood-corpuscles Intact.



Micro-photographed by Prof. R. S. Andrews, M.D.

THE CURE OF PULMONARY CONSUMPTION

is one of the latest and most wonderful developments of Blood Power—introduced mainly by the mouth, and sometimes also by spraying bovinine into the trachea by an atomizer. Every week of judicious internal blood treatment, with proper medical and hygienic care, has resulted in steady improvement as to all symptoms, with scarcely an instance of check, much less of relapse, until complete apparent cure, and that in the more advanced stages of the disease. As further examples, may be mentioned Anæmia, Cholera Infantum, Typhoid Fever, Hæmorrhagic Collapse, and many other of the most dangerous and aggravated diseases.

IN SURGERY: A CHRONIC ULCER,

of no matter how long standing or obstinate and aggravated character, can be cured with certainty—at least, the first instance of failure has yet to be heard of—by constant application of bovinine to the wound with proper surgical treatment and sterilization. Such cases are usually cured in from four to six weeks. So of traumatic injuries of all kinds; carbuncles, fistulas, abscesses, and even gangrene.

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of well known Physicians and Hospitals, where the Power of Supplied Blood is constantly relied on as a cardinal factor in the cure of disease and support of surgery, are at the service of every practitioner who desires to keep up with the progress of his profession, and may readily be obtained (including, of course, the technique and subsidiary treatments pursued) by applying to

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Neutralizes Acidity of the stomach and checks fermentation.

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Its Curative Power is largely attributable to its stimulant, tonic, and nutritive properties, by means of which the energy of the system is recruited.

Its Action is Prompt; it stimulates the appetite and the digestion, it promotes assimilation, and it enters directly into the circulation with the food products.

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Medical Letters may be addressed to:

Mr. FELLOWS, 48 Vesey Street, New York.